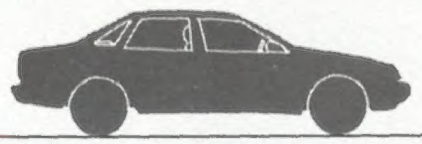
# Smithsonian

*March 1987*

Japanese kindergartners:
facing a future of 'exam hell'
with mama's help (p. 44)

## FORD TAURUS SEDAN AND WAGON



| | |
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| **Facts and Figures:** | Passenger Capacity:<br>Sedan—Up to Six<br>Wagon—Up to Eight<br>with optional third seat<br><br>Luggage Capacity:<br>Sedan—17.0 cubic feet*<br>Wagon—81.0 cubic feet* |
| **Major Standard Equipment:** | The MT-5 (5-speed manual) and GL include an electronic AM/FM stereo, 4-way front headrests, interval wipers, and many other standard features.<br><br>The LX (pictured) includes air conditioning, front seats with power lumbar supports, power windows/door locks, and much more.<br><br>All Wagons include a 60/40 split-folding second seat, two-way liftgate, and roof-mounted luggage rack. |
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Ford

*March 1987*

# Smithsonian

Volume 17, Number 12

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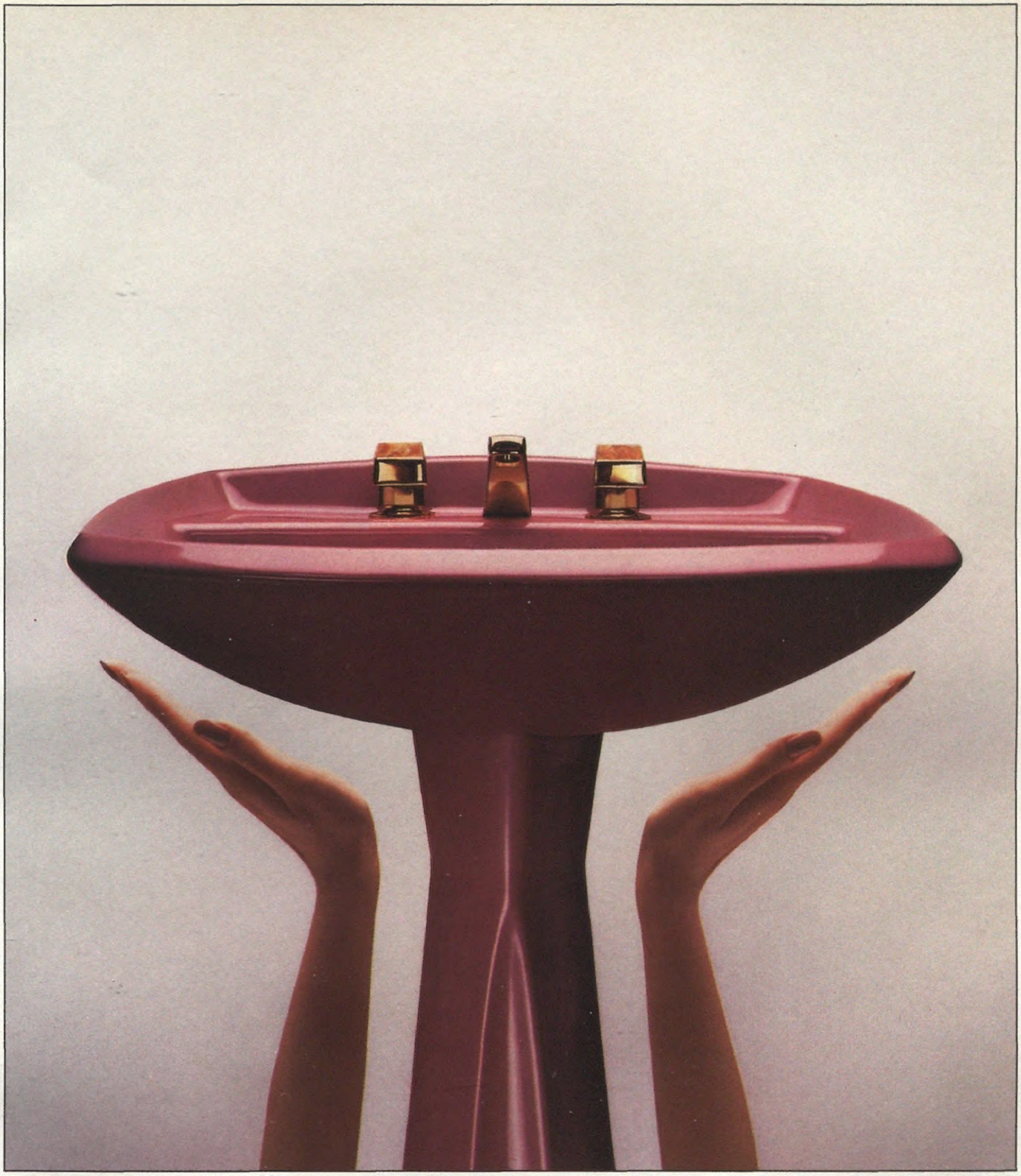

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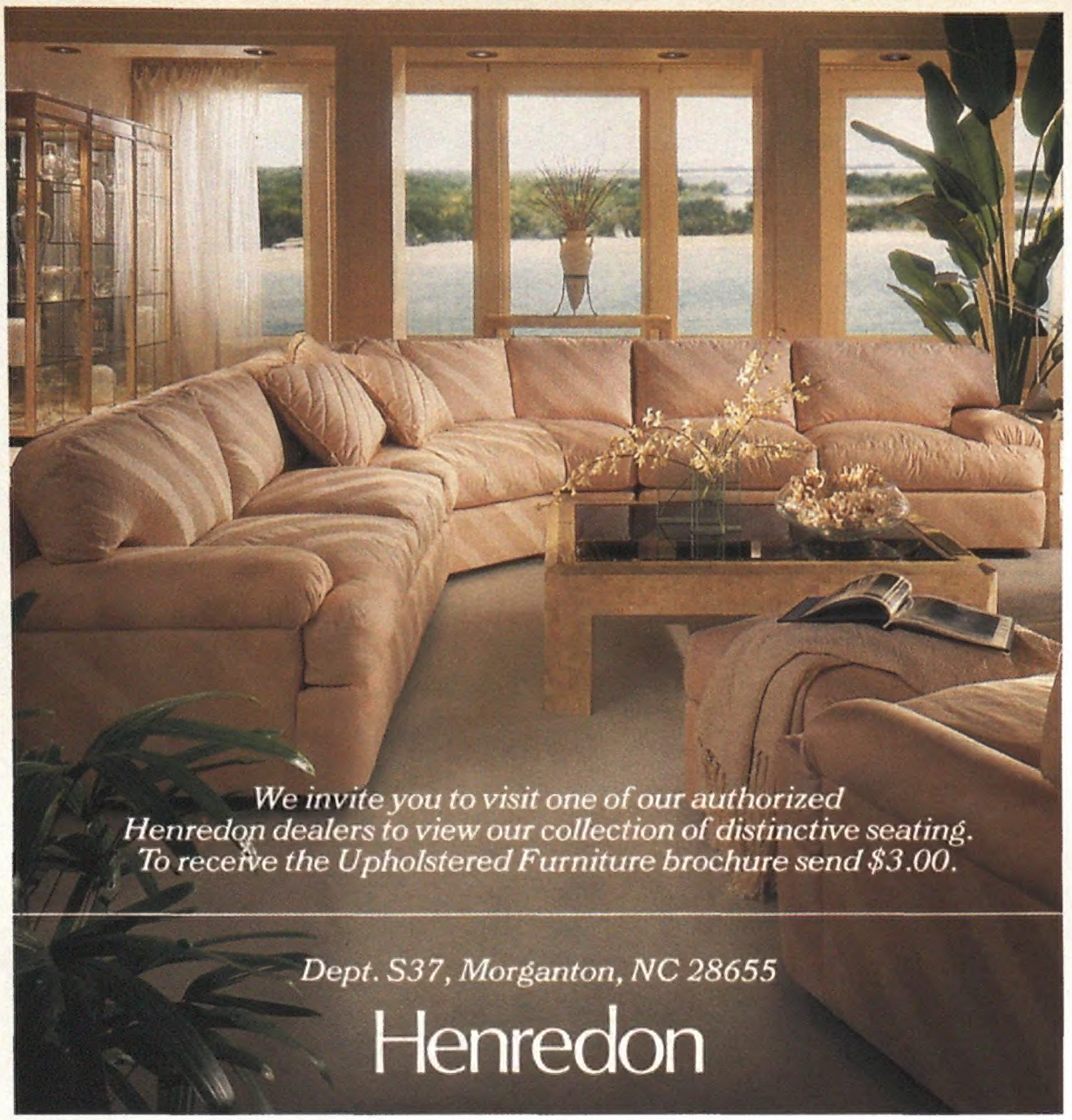
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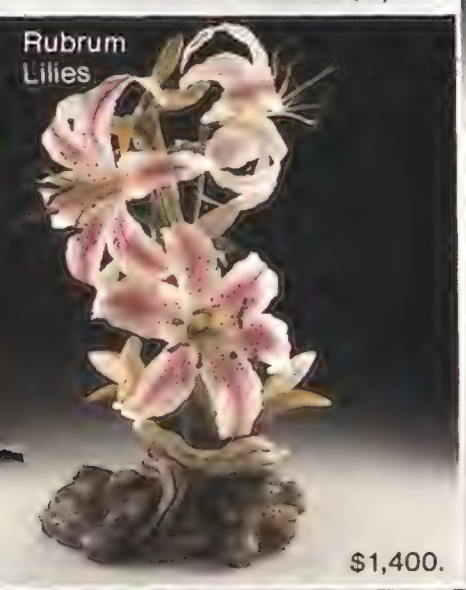

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*Secretary Adams' comments*

# *Smithsonian horizons*

*Two recent events raise the question of how Smithsonian museums should deal with artifacts of our own time*

To represent history as a continuing stream of human experience in which we are still immersed, a museum needs collecting policies that impose valid principles of selectivity. And as the stream runs on, far into the future, the problem of choosing guiding criteria to follow is daunting.

For the remote past, time involuntarily does much of our winnowing for us. The material basis of civilization in any age—but especially so in the productive superabundance of our own—is worn, patched and reused for a while, but for the most part it is ultimately recycled, reduced to trash, burned, scattered or ground to dust. Especially valued items may be preserved as heirlooms, but many more common and utilitarian objects never seem worth saving at all. And in any case, knowledge of the all-important *context* of use is very often destroyed by the process of discard.

For current history, therefore, we largely make do with texts and illustrations rather than artifacts. Considerations of space and cost all too often compel curators to avoid broad-spectrum collections, losing permanent access to the symbolic significance (as well as other qualities that cannot be described or measured) of what would otherwise be a huge array of originals. It is not an easy trade-off, but no one can yet seriously propose to reconstruct our recent past by excavating a sanitary landfill instead.

The farther into the past we look, the more we impose a pattern on our collecting priorities in other ways as well. For 19th-century America, for example, generations of scholars probably have made possible a reasonable degree of consensus on at least a handful of important historical themes—industrialization, Westward expansion, immigration, the abolition of slavery, and the like. For the 20th century, however, forces for change are so close at hand that we lose our sense of proportion about them. Moreover, the world has become a more interconnected place; no longer can even a limited autonomy of our internal developments be taken for granted. How, then, can a museum collect contemporary materials (with limited resources of professional expertise as well as space to store indefinitely growing collections) without some basic strategy that coldly dictates choices as to what will be of most enduring historical importance?

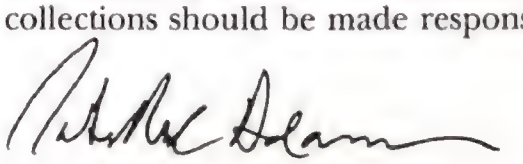
Two recent developments bring these questions to the fore. The Smithsonian Council, a distinguished body of scientists and other scholars, meets annually with much of the senior staff to review selected aspects of our programs. Its latest report, noting the relative inadequacy of the National Museum of American History's 20th-century holdings, calls upon the Museum to identify this century's overarching themes and then to implement collecting policies consistent with them.

Also exemplifying the problem is a pioneering new exhibit that the Museum has recently opened. Entitled "Field to Factory: Afro-American Migration 1915-1940," it portrays a genuinely broad and important theme of social history that the Smithsonian indeed should find a way to exhibit. But the contents of the exhibit make plain the profound difficulties in keeping collections abreast of the modern era's explosion of possibilities.

The Great Migration had few participants who were historically salient in the traditional sense. It involved hundreds of thousands of black Americans who left behind predominantly rural lives in the South for wage labor in Northern cities. There were "push" as well as "pull" factors—the deadening economic marginality of sharecropping, lack of educational opportunity and the evils of discrimination. All these find a place in the exhibit—field and cotton-processing tools, letters home from migrants, personal memorabilia, Ku Klux Klan literature, and even a tenant farmhouse carefully dismantled and preserved by the Smithsonian on the eve of its demolition in 1969. The same applies to the journey northward—a segregated station has been re-created for visitors, and a rail car of the time. Representing the new life are a timeclock, factory whistle, labor-union artifacts, a 1920s beauty parlor, church programs and the facade of a Philadelphia row house.

Prepared under the direction of curator Spencer Crew, this is an ambitious interpretation of a significant chapter of social history that normally receives little attention. But think of what had to have been collected, recorded and preserved in storage long before the possibility of such an exhibit was even imagined! Looking ahead and directing our collecting activities accordingly, what will be regarded as significant two or three (or ten—after all, these are the *permanent* National collections) decades from now?

Suggestions will be gratefully received: What are the significant trends of our own times to which the Smithsonian's collections should be made responsive?



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**First Day Covers combine art and history in a tribute to our American heritage.** Eisenhower...The writing of the Star-Spangled Banner...The Olympic Games...The landing of astronauts on the moon...Lindbergh's transatlantic flight...such are the subjects chosen by the United States for national honor on postage stamps.

The post office chosen for a first day of issue usually bears particular significance to the subject commemorated. For example, a First Day Cover of the 1982 George Washington 250th Anniversary stamp bears the "First Day of Issue" postmark of Mount Vernon, Virginia, Washington's home.

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As a member of the Postal Commemorative Society, you will receive a beautiful, personally addressed First Day Cover for every United States commemorative stamp issue, plus selected other important new stamps honoring our national heritage. These are normally issued at the average rate of about 25 times per year.

As a member, you will also receive the Society's exclusive display page for each new issue. Each beautiful, specially designed page is die-cut to hold the First Day Cover, and contains a full description of all important historical information about the subject of the issue. These pages are available only to Society members.

At the surprisingly low cost of $2.25 per issue you will be building a truly worthwhile First Day Cover collection to be enjoyed now and preserved for future generations of your family.

**Becoming a member now brings you an important collector's bonus at no additional cost.** The Postal Commemorative Society makes available to each new member a handsome collector's album with the member's name hand-embossed on the cover. This album, specially designed to hold the Society's display pages, makes it possible for members to keep each new First Day Cover in perfect condition. It is yours free, if you join now!

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# *Letters to the Editor*

### *Alligators*

Dear Sir: Your January article took me back 70 years, when my grandfather brought home to Atlanta, from Miami, a wonderful souvenir—a baby alligator.

Bosco grew and grew, evidently enjoying his private pool and cavern, just a mile from the State Capitol. What a marvelous alarm system he was: no one on the outside could lay a hand on the garden fence without Bosco's roaring like a lion.

We had this unusual pet for many years, until an especially severe winter did him in.

*Mrs. S.C. Finn*
Pembroke Pines, Florida

Dear Sir: For those whose daily paper is so benighted it does not run Gary Larson, I submit the following:

*Sven Lunsford*
Washington, D.C.

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Dear Sir: Mr. Jackson's alligators brought back memories of my teaching days at the University of Florida at Gainesville. Errant gators captured by the Florida Game and Fresh Water Fish Commission's wildlife officers were held in protective custody in a small fenced lake on campus—for their own good as well as that of the general populace.

A favorite Sunday diversion was to feed table scraps to the gators in Lake Alice. An old 14-footer dug a hole under the fence at the lake's edge and would lie there, with his head extended and mouth open, awaiting the scraps tossed to him.

One evening at dusk I drove a new professor—from Iowa—to the campus over a back road along the lake. Two glowing red "coals" on the road warned me to stop; my headlights shone on a six-foot gator on the asphalt. We got out on opposite sides of the road and I grabbed a fallen live-oak branch, pounded the asphalt and yelled. The gator took off—right toward the new professor, who broke the world's standing long-jump record—backward! He never again rode to campus with me.
*Eugene C. Bovee*, Professor Emeritus
University of Kansas
Lawrence

## *Spanish treasure*

Dear Sir: Seeking historic shipwrecks with a primary motive of avarice rather than interest in our history often leads to destruction of or damage to irreplaceable underwater archaeological sites and a loss of what we might otherwise learn from them.

Any archaeological site is a fragile, nonrenewable resource. Unthinkingly direct a high-powered blower on a site or pull a dredging device through it and you may recover precious metals and jewels. But our ability to understand history through the study of hull remnants and other contextual information is almost always gone. Painstaking scientific in situ examination of hull remnants, pieces of pottery and so forth usually does little for the profitability of a treasure-hunting expedition, as these historic resources and the popular and scholarly reports that result from their study do not command the same price as gold, silver or jewels.

In state after state, legal challenges to treasure hunting are being brought by governments as part of an effort to pre-


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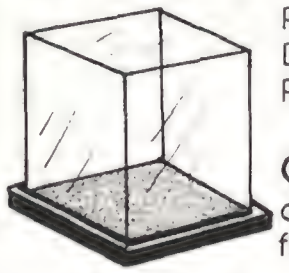

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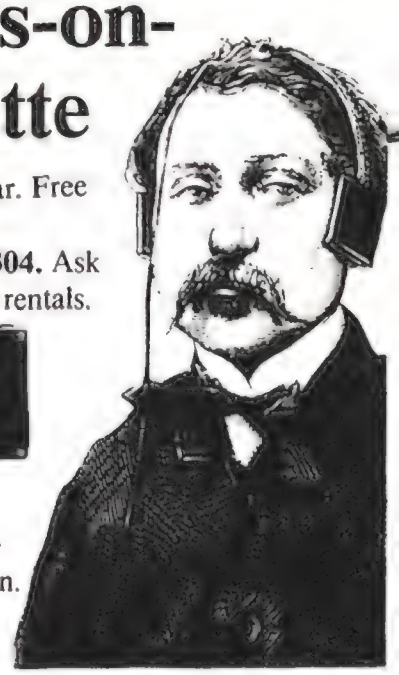

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*The DL-323 is called "3-way" because it serves as a nightlight, flashlight, and area-illuminating power failure light.*

**The *DL-323*: A Rechargeable 3-Way Power Failure Emergency Light**

Because of our large buying power and agents all over the world, we have unlimited access to merchandise. And after scouring all sources, we decided that the *DL-323* would be such an irresistible offer, especially if we could "sell it" at a give-away price. At our special-offer price of $12.95, the *DL-323* is a "steal." You get these quality features:

- Plug into any 110-volt wall outlet. The *DL-323* will always be charged. Bypass circuitry avoids overcharge.
- Red LED serves as nightlight and shows that unit is on charge.
- If power fails, the *DL-323* turns on automatically. When power is restored, it reverts to the charging mode.
- Unplug the *DL-323* anytime and carry it as a convenient flashlight.
- Has folding plug, off/on switch.
- NiCd power cells for continuous recharging and highest performance.
- White high-impact designer body, 3″ wide, 1½″ deep.
- 1.5 watt bulb, easily replaced and obtainable anywhere.
- Faceted parabolic reflector for wide-beam illumination.
- Listed by Underwriters' Labs.

Every home should have *at least* one *Power Failure Light*. Many prefer to have one in every room of an apartment or on every floor of a house. You are not helpless—groping for candles or a flashlight that more likely than not has spent or corroded batteries. But the *DL-323* goes on when the power goes off and provides area illumination when you need it. You can remove the *DL-323* from its socket any time and use it as a bright broad-beam flashlight—it's always fully charged!

As for quality: don't let the low promotional price turn you off. The *DL-323's* are made to highest quality standards. We warrant them for material and workmanship for one full year. And, of course, UL (Underwriters' Laboratories) wouldn't put *their* stamp of approval on them if they were not convinced of the quality.

**Here is the deal.**
**Take advantage of it!**
The *DL-323* is made to sell for $29.95 to $39.95. We ourselves have sold thousands at these prices. But with this special limited list-building offer, you may order this outstanding *Power Failure Light* for just $12.95.

Because this *is* a list-building promotion, we must limit this offer to a *maximum of three (3) Power Failure Lights per household*. You may, however, *request up to six (6) Power Failure Lights maximum if you mail your order within 30 days of the publication of this ad*. (No exceptions, please!) ***If you do buy six (6) DL-323 Power Failure Lights, you only pay for five (5)—the sixth one is with our compliments, absolutely FREE!*** With this offer, only mail orders, accompanied by check or money order (no chargecards, no phone orders!) can be accepted. Because of the special price, we cannot assure that the *DL-323's* will be available beyond 60 days from the publication of this ad.

Take advantage of this incredible buy—this totally unprecedented offer—while it is available. Write your name and address on a sheet of paper, and also write **"Code B888."** Tell us how many lights you want and include your check or money order. Add $2.95 postage/insurance for the first light and $5.90 for two to six lights. Add sales tax for California delivery. Mail to:

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List Building Division, Dept. DL-323
131 Townsend Street
San Francisco, CA 94107

serve from plunder our common history. Legislation is pending in Congress to strengthen the ability of states to enforce their cultural-resources laws. Not all of history is protected from looting by the walls of museums. We should applaud and support these efforts to protect our historical resources regardless of where they are located.
*Philip Speser*
Society for American Archaeology
Washington, D.C.

Dear Sir: Bernal Díaz was not Hernan Cortés' chaplain. He was, rather, a courageous soldier from Castille in the service of the conqueror of Mexico, veteran of 119 battles and survivor of a number of serious wounds. In recognition of his contribution, the Spanish court made him magistrate of Santiago de Guatemala, where he spent the remainder of a very long life.
*Paul Woodman*
Washington, D.C.

## *Urban invaders*

Dear Sir: The back lawn of my childhood home in North Carolina abutted some beautiful woods. This friendly forest, sending out ailanthus seedlings which grew with alarming rapidity, fully intended to take over a substantial part of our yard.

As I hated mowing the lawn, I decided to help out by steering the mower carefully *around* the invading ailanthus, hoping that within five years these miracle trees would have commandeered the entire backyard. But within three years my mother noticed the creeping forest and demanded that I cut back the trees to restore her lawn.

It should be noted that ailanthus sap produces a horrible stench, which I had to endure while chopping back the trees. Poetic justice.
*Philip S. Menzies*
Washington, D.C.

## *Esperanto*

Dear Sir: The enthusiasm shown by supporters of Esperanto means that many people recognize the crucial need for a global auxiliary language, or GAL.

However, there is not the slightest chance that Esperanto will ever achieve that status. It is not a global language, but a simplified European language using the Roman alphabet. Consequently,

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If, however, you decide to keep it, you pay only $14.95 plus shipping, handling, and applicable sales tax. Other volumes in the series come to you approximately every 6 weeks with the same free trial, and you can cancel anytime, without obligation to purchase anything.

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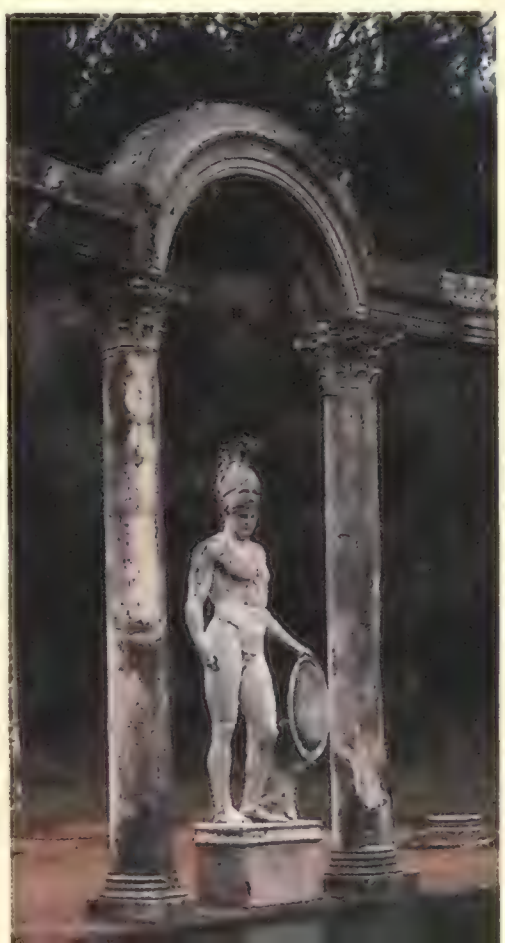

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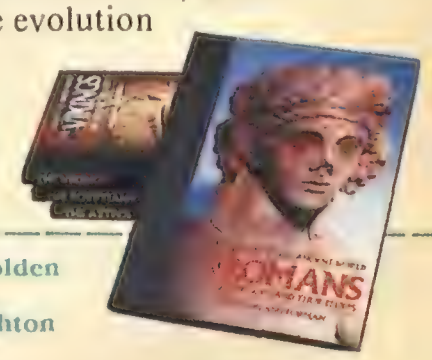


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half the world would have to learn a new alphabet in order to learn it. Also, a GAL must be far more efficient than national languages, and Esperanto is only marginally more efficient than English, German or whatever.

With our present state of knowledge and the availability of computers, it would be possible to develop a true GAL that could have a revolutionary effect on communication around this shrinking globe. What is needed is a new language with a new alphabet, developed by international cooperative effort involving experts in many fields. It would be a long and expensive project, but if properly carried out should result in a means of communication so easy to learn and so easy to understand that it would find ready acceptance.

The immense benefits of a truly global language are within our grasp for the first time in history.

*John A. Bennett*
Bethesda, Maryland

## *Research balloons*

Dear Sir: Your article revived memories of pioneering upper-atmosphere research done by General Mills Inc. in the late 1940s and early 1950s, which was then under contract to the Office of Naval Research.

The so-called "Skyhook" balloons were sent aloft to gather cosmic-ray data. In the process it was necessary to develop some of the first lightweight telemetry equipment, including some extremely crude printed circuitry. How crude? Well, the base for an altitude-reporting device was an epoxy cylinder cast in a Minute Maid frozen-orange-juice can.

The Skyhooks undoubtedly were responsible for much of the flying-saucer excitement of that era. The giant poly bubbles floating at 110,000 feet glowed brilliantly in the sky long after the sun had set where the viewer stood. Launchings were made in Minnesota and in Oregon, permitting the Skyhooks to drift eastward across the continent, thereby turning "flying saucers" into a national experience.

*Clancy Strock*
Chesterfield, Missouri

## *Phenomena*

Dear Sir: Twenty-five years ago I came to Washington from England and immediately acquired dogs and a map of the District. Roosevelt Island stood out as a prime dog-walking site for the mongrel, the Bouvier and a Lhasa apso. They loved it and before long we had renamed it "Paradise Island."

One cold Saturday morning, when ice floes jammed the Virginia side of the Potomac, we were on our way back over the causeway when a bystander shouted: "Your small black dog is in the river!" The Lhasa had decided to take a swim. Although weighted down with pups, she was struggling silently—Oriental aristocrats seldom complain. I jumped in and rescued her. Back home she warmed up with milk and Scotch, and a few days later gave birth to seven beautiful, healthy pups.

How happy one is to know that Roosevelt Island is still a haven for nature-loving bipeds and quadrupeds!

*Joan Clarke*
Nashville

## *Robert Bateman*

Dear Sir: Your caption for the elephant "Bluffing Bull" uses the words "shrouded in mist." In Amboseli Park in Kenya—no way. Amboseli is a very dry, sandy area; fine dust arises with every move made by man or beast.

Obviously the elephant has been taking a dust bath, as one can see by his color. The "mist" eddying around him is blowing dust.

*Helen C. Childs*
Upland, California
*Ms. Childs is correct.* Ed.

## *Mall*

Dear Sir: My kid brother is a clockmaker. Because of his cacophonous vocation I have frequently addressed him as "Tick," but Mr. Park's tick piece has induced me to address him more respectfully as "Tock."

Several years ago a tick and I converged while hiking a mountain trail. My favorite dermatologist withdrew it from my posterior with a lighted cigarette and his outer-office staff preserved it, alive, in a bottle, without further nourishment, for 251 days. Then, as the source of its sustenance, I was invited to attend the tick's funeral.

I should have charged that doctor $40 for entertainment. Instead, he charged me that sum for making a contribution to his office zoo.

*Robert E. Belding*
Ocala, Florida

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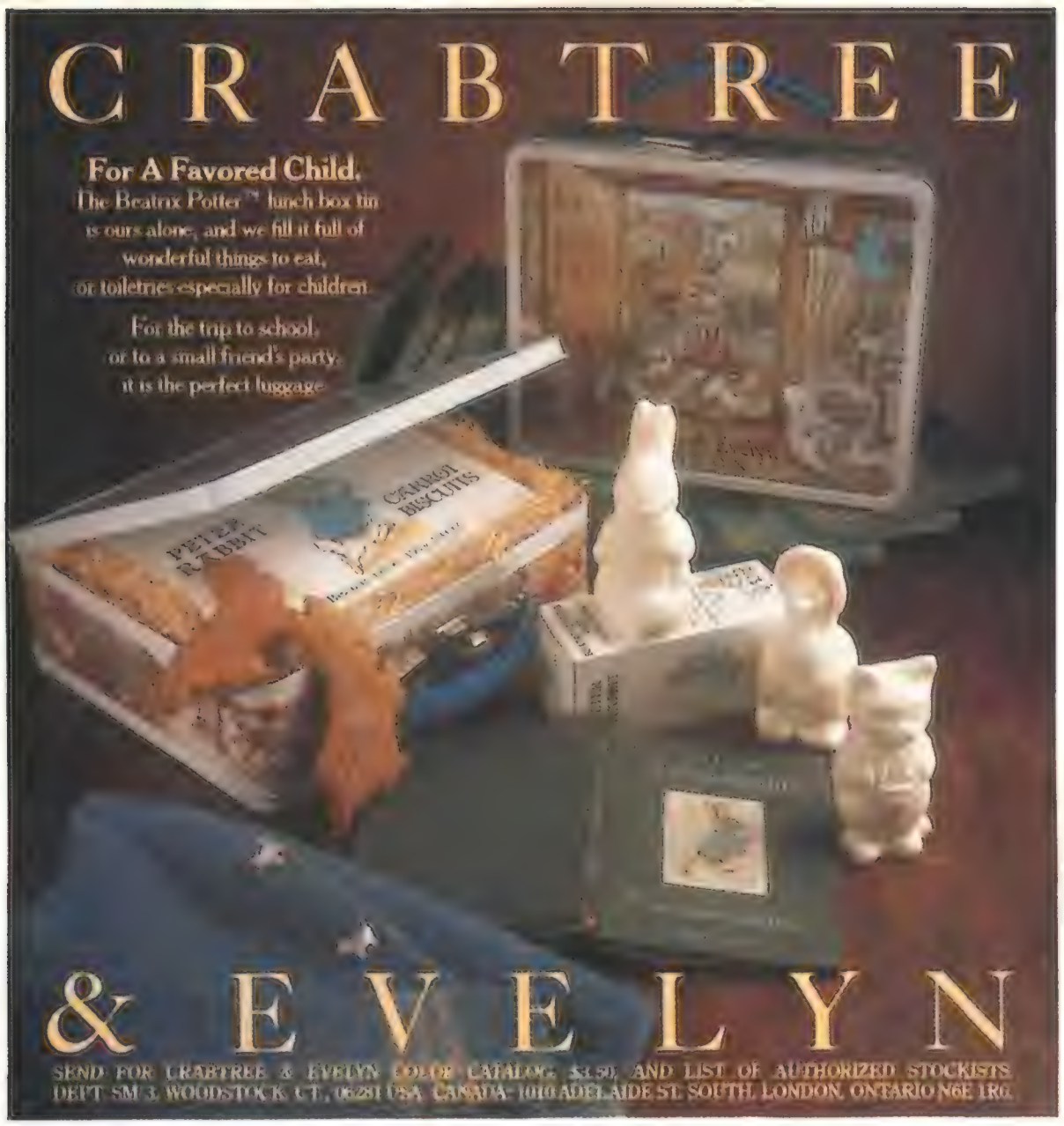
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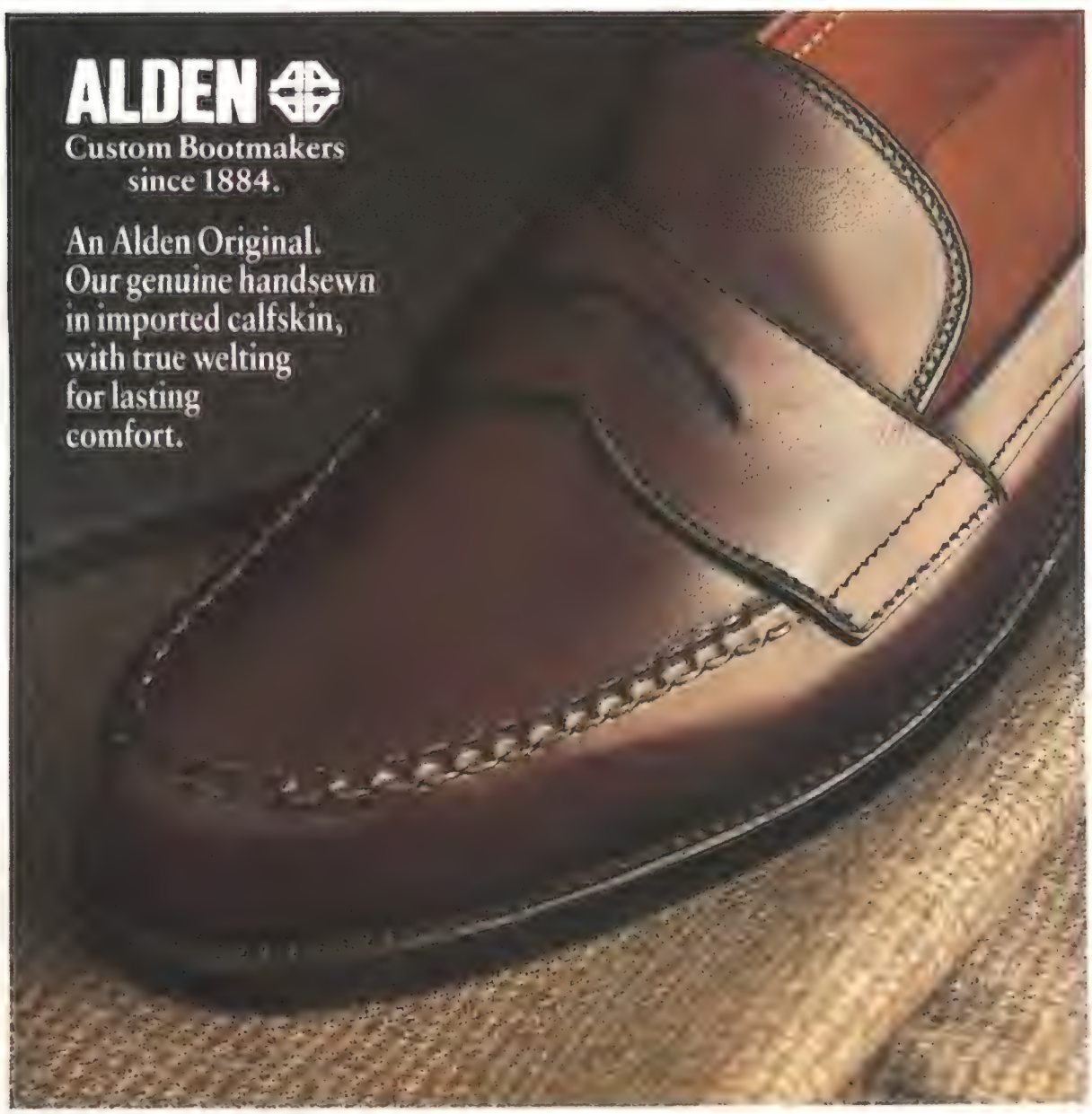


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# *Around the Mall and beyond*

Some months ago a lady of great age and grace wrote a letter to Secretary Adams. I was sent a copy because in it she mentions meeting Winslow Homer, and I get turned on by people touching base like that with the past.

Her father had bought land in Maine, early in this century, from the famous artist, and she remembers visiting Homer the day her father signed the papers. "I was about seven," the lady writes, "but I remember the pin-striped trousers, frock coat, and the gardenia (I still have it). . . ." Homer was an old man, and a bit grumpy, and when he saw that the little girl had an umbrella, he told her to put it away. He was afraid she'd stick it through one of the paintings that were propped up on the floor. "He scared me," she writes.

The lady's description of Winslow Homer rang a bell. I found a copy of *From Reliable Sources*, the catalog that the Archives of American Art (SMITHSONIAN, June 1971) put out in 1974 for its 20th anniversary. There, sure enough, was a photograph of the aging Homer looking sort of bad-tempered, and very natty in stiff collar and frock coat with boutonniere. I couldn't make out his pants, but I'll bet they were pin-striped.

"Homer did get a little crotchety as he aged," said my friend Garnett McCoy, Senior Curator at the Archives of American Art, when I told him about this. He showed me some letters dashed off in a rapid but assured handwriting. In one, written in Maine, Homer thanks a friend for the loan of a Civil War book, and reveals some deep feelings about his work as war artist for *Harper's Weekly* that first gained him a reputation.

One of his best-known illustrations is "The Army of the Potomac—A Sharpshooter on Picket Duty." In this letter he

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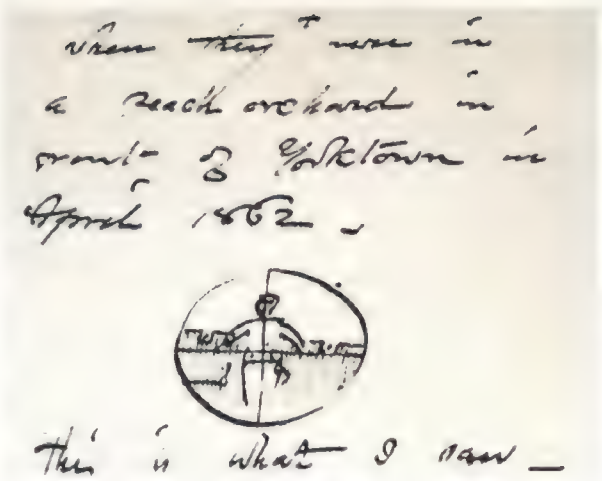
writes that he had actually peeked through that long telescope sight. Then in his letter he makes a sketch of what he saw (right)—and it horrified him. Sharpshooting, he writes, "struck me as being as near murder as anything I ever could think of in connection with the Army & I always had a horror of that branch of the service."

Another Homer letter, dated February 18, 1897, is very angry: "My Dear Sir—It *is impossible* at this time of year to receive you at my studio. It is much better that I do not say to you what I think about this matter."

"That probably was to an art critic," Garnett told me. "Homer didn't have much use for them." He showed me a letter to Thomas B. Clarke, who had just bought the painting *Hound and Hunter*, which now hangs in the National Gallery here in Washington. The painting shows a lad sprawled in a boat, trying to secure the head of a deer, which is almost sunk in a wild, autumnal stream or pond. Homer got $900 for it and was pleased, in a terse, state-of-Maine way. "Thanks," he says.

Then he cuts loose: "The critics may think that that deer is alive but he is not—otherwise the boat & man would be knocked high & dry. I can shut the deer's eyes, & put pennies on them if that will make it better understood. . . . It is a simple thing to make a man out an Ass & fool by starting from mistaken idea—so anyone thinks this deer is alive is *wrong*."



Winslow Homer sketch depicts view through sharpshooter's telescope sight.

Just as Homer's artistic self-assurance—and irascibility—emerge in his letters, so does Mary Cassatt's shyness. When the Carnegie Museum in Pittsburgh requested a photograph for its annual international exhibition, she politely but firmly refused: "I don't possess one, and it would be very disagreeable to me to have my image in a catalogue or in any publication." She felt that the personal appearance of artists had nothing to do with their work.

Other artistic personalities are rounded out by their letters. Thomas Eakins, leading figure in American realism, who lost the Pennsylvania Academy school directorship because he insisted that students should use real live nude models, here takes up the cudgels in a new cause: "Is there . . . a hard and fast rule that frames must be gold?" And, "I always protest against the barbaric splendor of new gold frames which injure all paintings." His letters are a delight to read because of the beautiful handwriting. His father had been a teacher of copperplate script.

The Archives of American Art (AAA) was established in Detroit, in 1954, to provide answers to the question that haunts us all when we collide with a great work of art: What sort of a person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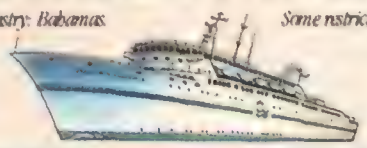

PEARL'S FAR EAST
By Land. By Sea.

did that? Letters by and to artists and sculptors, letters about them, diaries, tapes filled with oral history, sketches, diagrams, maps and of course photographs (despite Mary Cassatt's prejudice) give us many clues.

These collections of personal papers come in to the six regional offices of the AAA in Detroit, Washington, New York, Boston, San Francisco and Los Angeles. They are sorted, then sent to Washington for storage. The Washington office—the Smithsonian (the AAA became a Smithsonian bureau in 1970)—is national headquarters. Here are gathered, says Garnett McCoy, about nine million items, ranging back into the 18th century.

Writing from Parma, Italy, in July 1775, three months after the eruption of the American Revolution, the young New England portraitist John Singleton Copley sends a friend his recipe for varnish. He closes, "I have been in some measure relieved from my anxiety by a Letter from England by which I find Mrs. Copley with three of my little ones are in that Place safely arrived. . . . She writes the most deplorable account of the confution of Boston & indeed the Whole Province that you can Immagine consiquential on Civil War. . . ."

Similar letters come in from today's notable art figures. McCoy says that the AAA seeks material from living artists who've made a name and whose styles of work have been fully established. "Abstract Expressionism is now pretty old," he said, "so we have papers from that period. But the 'New Realism' is too new." I nodded wisely, as one does when one is totally bewildered.

"Artists usually don't save their own papers until after they have achieved a reputation," McCoy continued. "But their families and friends often keep letters and other documents that can be revealing." Frequently such papers disclose choice views of early America. A sculptor named Frazee describes for his wife a trip on a train in 1834: "A few minutes and we were off like a shot, at the rate of 15 miles an hour.—The sensation to me, in this new Conveyance, was, at first, quite disagreeable and for several miles I was chuck full of fears, fits, and starts!—" He was riding the historic Camden and Amboy Railroad in New Jersey, and may even have been hauled by the Smithsonian's John Bull, the world's oldest operable locomotive.

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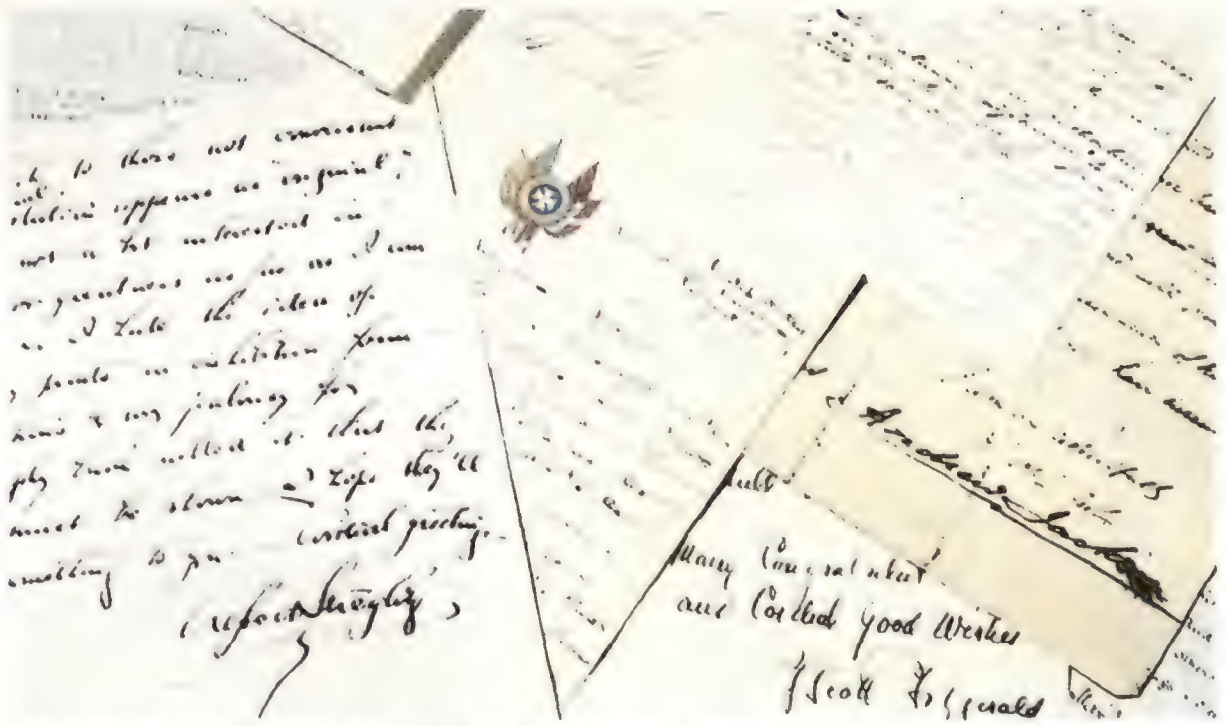

AAA letters above include ones from Andrew Jackson (to sculptor Hiram Powers), Alfred Stieglitz and Mary Cassatt.

Parrish in his day. This artist, whose rich, classical illustrations adorned books at the turn of this century, writes to a friend in 1918: "I shall be in New York Monday to rent a house. . . . I find we can get one for $88047102.03 a year. . . ."

He goes on to describe some modern artists of his day whom he visited in Vermont—"a little colony of genuine Futurists"—and their clothes—"tie and pants of emerald green . . . pajamas of raw pungee silk, bright orange shirts. . . ." As for their art, "they stated their platform, and we fell on each others' necks, for it was my platform too, but I've seen their paintings & I do not understand."

The collection contains a letter from F. Scott Fitzgerald, written in 1931 to the artist Charles Green Shaw. The author is worried about "that Barrymore matter," something that must have happened at a party: "We were both pretty tight; he made this remark and I simply called him on it—that was all. The whole incident didn't take a minute & was probably agravated [sic] by the fact that we'd had words when he was rude to Zelda two weeks before."

This was written at a time when Zelda, his wife, had broken down mentally, causing Scott anguish. To meet expenses he was writing short stories. He ends his letter: "—please read a story of mine called *Jacob's Ladder* which will be in the *S.E.P.* [*Saturday Evening Post*] in about two months. I think it will interest you. . . ."

The AAA, in short, gathers social history at its best, filled with facts about the way we were, but never losing the sense of fun. As Garnett McCoy once wrote, archivists "freely indulge the temptation to open other people's mail." Often the gossip they uncover contains rare gold.

Beginning this spring, according to AAA Director Richard Murray, the computer revolution will strike this Smithsonian bureau, with most beneficial effect. Automation will allow scholars to visit convenient libraries and there be able to punch out information from the Washington collection. And I shall read about Abstract Expressionists, and, like Maxfield Parrish, I will not understand.
*Edwards Park*

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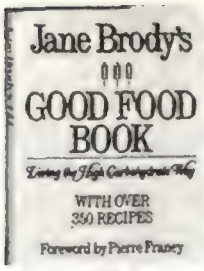


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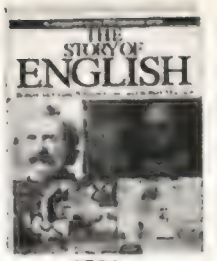


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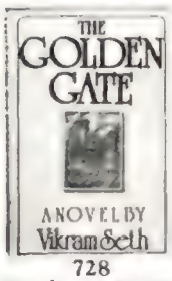


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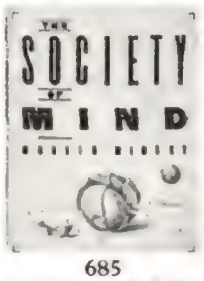


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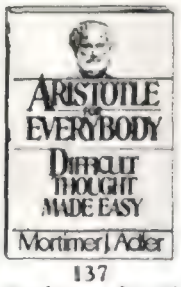


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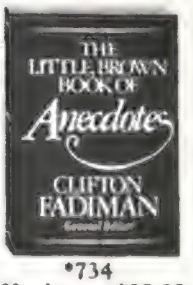


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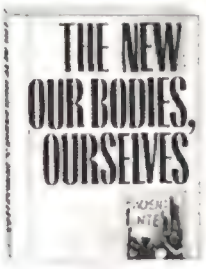


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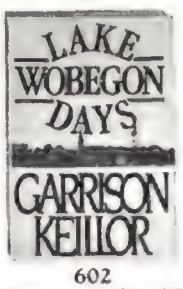


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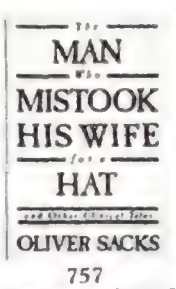


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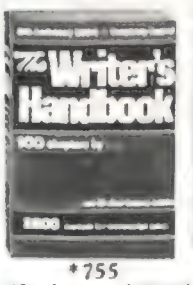


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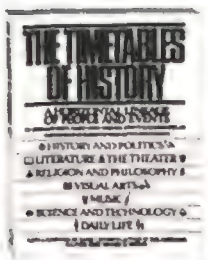


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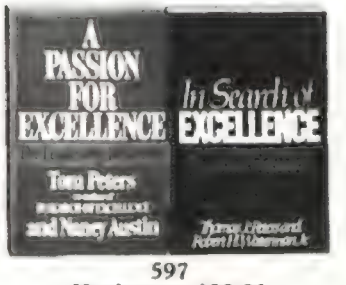


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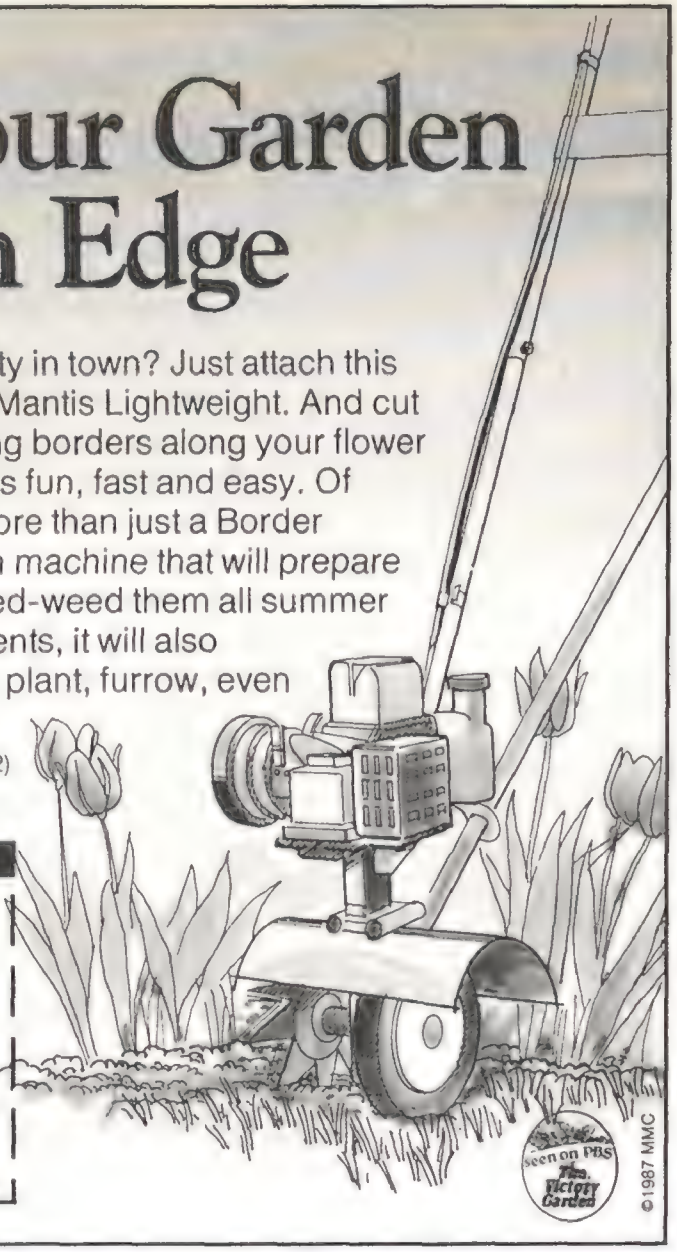


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# *Phenomena, comment and notes*

*Meeting in Pasadena, astronomers report the latest on the deaths of stars and the births of solar systems and galaxies*

Between the Rose Bowl and the Superbowl last January, a smaller, quieter crowd arrived in Pasadena, California: members of the American Astronomical Society for their 169th meeting. They had met here in September 1923 and again in June 1948, hard by the San Gabriel Mountains and beneath Mount Wilson, the peak from which human beings first learned that our galaxy is only one of billions and that all of the Universe that we can see is flying apart. The mountain is now a thicket of television-transmitter towers; the historic 100-inch telescope has been mothballed, a victim of the sea of electric lights that has spread across the valley floor like a tide covering a mud flat. But elsewhere astronomy has moved forward nearly as fast as light itself.

"We have lived through the golden age of astronomy," declared Frank Drake, an astronomer best known for beginning the search for extraterrestrial intelligence with a radio telescope in Green Bank, West Virginia, back in 1960. Indeed. Anyone who has looked at a newspaper over the past quarter of a century has read of quasars, pulsars, black holes. We have sent spacecraft to the planets, and looked at the rest of the Universe at radio, microwave, infrared, ultraviolet, x-ray and gamma-ray wavelengths, discovering new phenomena at every step. One of the few things astronomers have not seen is any sign of an end to the golden age.

Much at the meeting was new, either new to astronomers or new to the Uni-

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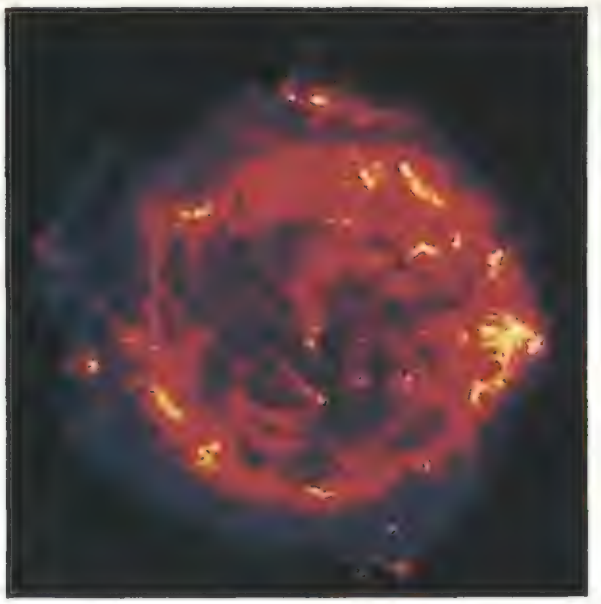

A radio image shows violent shell of Cassiopeia A, a star that exploded.

verse in the sense of just being born. One group has found what appears to be our best example yet of a solar system in the process of forming. Anneila Sargent of Caltech reported on radio observations of HL Tauri, a young star about 500 light-years away in the constellation Taurus the bull, which precedes Orion the hunter across the winter sky. Two years ago a group led by Steven Beckwith of Cornell, working at infrared wavelengths, had found an accretion disk of dust and gas orbiting the star. Now Sargent and Beckwith have used three radio telescopes at Caltech's Owens Valley Radio Observatory to examine carbon-monoxide molecules in the disk. They used the Doppler effect to measure the rotation of the disk: the wavelength at which carbon monoxide emits radio waves is distinctly shifted one way in the part of the disk that is moving toward us and in another direction in the part that is moving away. They found that the disk is rotating according to the rules for our Solar System laid out by Johannes Kepler in 1609; the inside is rotating faster than the outside, just as the Earth goes around the sun faster than does Jupiter.

Another team reported something even grander: a whole galaxy apparently in the process of being born. The object is still mostly a cloud of hydrogen gas 300,000 light-years across, excited by the energetic ultraviolet radiation pouring out of huge, very young stars. This "protogalaxy," known as 3C 326.1 (3C stands for the Third Cambridge catalog), has been known to astronomers as a powerful source of radio waves for a long time. A team from the University of California, Berkeley, the University of Arizona and

# Is the arthritis drug your doctor prescribes as safe as aspirin?

## *Chances are it's safer!*

There is an abundance of misinformation about arthritis and its treatment. What you read or hear from non-professional sources should not be allowed to interrupt the treatments your doctor prescribes. Let's examine how doctors actually treat arthritis.

### Drug treatment of arthritis began with aspirin.

Most of us think of aspirin as an essentially harmless medicine for fever, headache, toothache, or other minor pains. But in 1899 aspirin, in higher than the usual dose, was also found to reduce inflammation. This suggested it might be useful in arthritis (inflammation of the joints). In fact, aspirin was practically the only drug treatment for arthritis during the first half of this century.

### Aspirin risk vs. aspirin benefits.

Although aspirin is still among the most effective treatments for arthritis, it is far from harmless in the high doses that are needed (as many as 8 to 20 tablets a day). It can cause a variety of unwanted effects ranging from nausea and vomiting to stomach ulcers. Doctors treating arthritis have always had to consider whether the benefits of aspirin outweigh these risks.

### The promise of new anti-arthritis medicines—greater safety.

Pharmaceutical research in the treatment of arthritis has concentrated on finding drugs that are safer than aspirin. About 1950, cortisone and other steroid hormones were thought to be the answer. But while they are valuable in treating many medical and surgical problems, they cause too much change in overall body chemistry when used for long periods of time in arthritis.

In recent years, a group of medicines called nonsteroidal anti-inflammatory drugs (NSAIDs) became available. Most people have no difficulty taking these drugs. NSAIDs offer significant advantages over aspirin because they produce fewer side effects—particularly in the stomach and intestine. Today they are the drugs most widely prescribed for arthritis by doctors all over the world.

### Making your medicine easier to take.

A major advance of the past decade has been the introduction of new NSAIDs that can provide effective relief when taken less often. This avoids the inconvenience of having to take medicine for arthritis several times a day. It can also eliminate the problem of being awakened at night by arthritis pain.

### What's right for you—your doctor knows best.

Your doctor will select the arthritis treatment that is right for you. Sometimes one NSAID works better than another.

Discuss any question you may have about the medication with the person who knows most about your medical problems—your personal physician.

Your doctor can determine whether the problem comes from your medicine or reflects some other underlying problem. Remember, 95 out of 100 patients take arthritis medication without any serious discomfort.

You may get all kinds of advice from well-meaning friends, relatives, and other people with arthritis. Don't let them make medical decisions for you. The only person competent to do that is your physician.

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the Harvard-Smithsonian Center for Astrophysics (CFA) was first able to locate it with greater precision than ever before. Then they turned to the visible part of the spectrum, using the 120-inch telescope at the Lick Observatory in California. At the wavelengths of excited hydrogen, the galaxy shines with the luminosity of 100 billion suns. The young stars themselves are radiating with the luminosity of only a few billion suns. In other words, this is a young galaxy in which most of the gas has yet to turn into stars. Partrick McCarthy, a Berkeley graduate student who described the work at a press conference, said that within those clouds of glowing gas, approximately 1,000 stars are forming each year. In our own galaxy, that rate has slowed to one a year.

Watching this galaxy form involves more than idle curiosity, especially for theorists. In our current cosmological thinking, all galaxies formed at the same time, in the very early days of the Universe. But 3C 326.1 is not so far away, and thus not so far back in time, as current theory would predict. Apparently, galaxies formed over an extended period and not all at once. Theorists have their work cut out for them.

The emerging patterns of galaxies continued to receive much attention. At a news conference on the top astronomical stories of 1986, Margaret Geller of CFA brought us up to date on the "bubbles" that appear to give the Universe a foam structure. The original survey was done in a strip of sky six degrees wide by 123 degrees long (the full moon appears to span half a degree in the sky). Her group has done a second strip six degrees wide adjacent to the first. Now their sample of the night sky includes 2,000 galaxies. Even so, Geller said, some of the bubbles are larger than the strip of sky they have surveyed so far. The largest bubbles they have been able to measure are about 150 million light-years across. They won't know how big some of the bubbles are, however, until they do still more surveys.

How the bubbles form is an open question. Leonid Ozneroy, a Soviet astronomer who joined CFA last summer, was said to have suggested in 1977 that they were there, before anyone had seen them. He suggested that they were the expanding shock waves from explosions in primordial galaxies. Since then a number of other astrophysicists have offered other explanations. Geller said in


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Pasadena that the question remains very much open and might have to do instead with clumps of cold dark matter formed by perturbations in the early Universe.

Roger Lynds of Kitt Peak caused something of a sensation when he presented photographs of luminous arcs, ten times the distance from the Earth to the center of our galaxy, lying among distant clusters of galaxies. They shine with the light of 100 billion suns, and if they were anywhere in our local cluster of galaxies, according to theorist Vahe Petrosian of Stanford, would be as bright in our night sky as the Milky Way. What they are is an open question. The arcs are centered on the centers of gravity of their respective clusters, and at first look like expanding shells from cosmic explosions. But if we are looking at the edge of an expanding shell, Lynds explained, we should see some luminosity inside the arcs, which we do not.

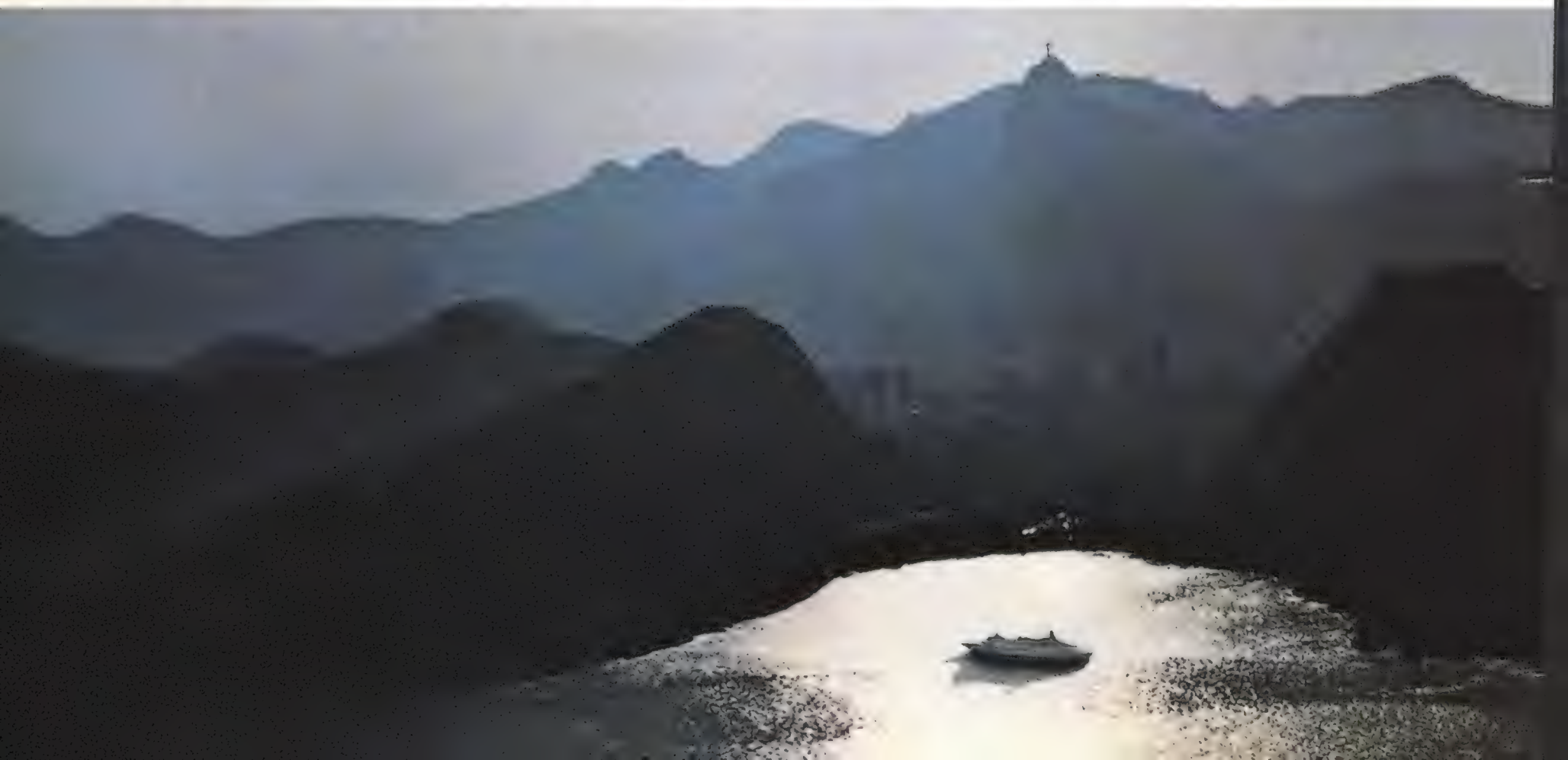
Perhaps the most remarkable picture shown in Pasadena was one of the violent goings-on in the shell of a supernova that exploded (as we see it from Earth) in 1680 (p.36). Up until now, astronomers have assumed that when a star blows up, it throws out a smoothly expanding shell of stellar material. The shell would be slowed as it pushed against the gas and dust of interstellar space. But no one could account for how bright these supernova remnants are, or for the unexpected slowness of their decline in brightness.

The picture solves the mystery. A team from New Mexico and England used the Very Large Array of radio telescopes on the Plains of San Augustin, west of Socorro, New Mexico (SMITHSONIAN, July 1978), to study a supernova remnant known as Cassiopeia A. Data from three different observing runs on the radio telescopes over a period of two years were processed on a Cray supercomputer, producing the most detailed radio images yet made. From these "time-lapse" images, the astronomers realized that behind the smoothly expanding shell are lower-velocity fragments of star material also thrown out in the original explosion. As the outer shell slows, these fragments come punching through, and each puncture produces a region of bright radio emission. The whole process is ethereal for those of us accustomed to matter in the solid state. The fragments producing the explosive interactions are very diffuse: typically they are 400 times larger than our entire Solar System, but only 300 times as massive as the Earth alone.

For those readers looking for something new to worry about, consider this: Cassiopeia A is the last supernova to have occurred in our own galaxy. Three hundred years have passed and we are overdue. Astronomers are looking forward to the next one, the first that can be studied with modern astronomical instruments. But they don't want too good a look. A supernova too close to us could be the end of life on Earth (a radiation bath from a nearby supernova was once a leading explanation for the demise of dinosaurs). And one of the stars that astronomers are expecting to explode someday in a supernova is Betelgeuse, the red giant at the shoulder of Orion, which is only 640 light-years away.

If any nearby potential supernovae and any and all exotic objects and events waiting to be discovered in this ongoing golden age can hold off for a decade, a whole new generation of tele-


Rio by night. Amazon by Indian
The Southern Americas by Roya



scopes will be awaiting them. One of these may be on Mount Hopkins in southern Arizona, where the Smithsonian and the University of Arizona operate the Multiple-Mirror Telescope, the MMT (SMITHSONIAN, May 1979). Director Fred Chaffee told the meeting that plans have been drawn up for a single 6.5-meter telescope to replace the existing six mirrors that together constitute a 4.5-meter instrument. They have started buying the 13,000 kilograms of glass for the main mirror. But they have a problem and are seeking help. They want to keep the acronym MMT when the multiple mirrors are gone, so reversing the usual order, they are looking for words to fit the letters.

On the meeting's last day, a busload of science writers and observatory information officers headed south for the Mecca of optical astronomy, Mount Palomar. The 200-inch telescope there (the size refers to the diameter of the main mirror, the "objective lens" of a reflecting telescope), has been our giant eye on the Universe since 1948. For a one-time backyard astronomer who has read about Palomar for four decades, it was like a visit to a cathedral. Inside the snow-covered dome, all is gleaming battleship gray. In the center, reaching right to the hemispherical ceiling, is the heavy steelwork of the telescope and mounting, 585 tons so delicately balanced it can be moved with a one-twelfth-horsepower motor. You stand there silent, in awe, and then the operator punches buttons, oil pumps for the bearings start up, and the whole assembly swings silently until it is pointing just over your head and you are looking down past the observer's cage, past a secondary mirror that throws the image out to instruments along the side, and down to the 14.5-ton glass disk. It is a quasar's-eye view of the greatest telescope ever made.

My last night in California finds me driving across the Pinto Basin in Joshua Tree National Monument. The creosote and mesquite, the jumping cholla cacti and the smoke trees have faded with the light; moonlit mountains shine in every direction and I have the sudden sensation that I am driving across the floor of a crater on the Moon. Then it is up the slope at the north end of the plain, through the transition zone between the Colorado and Mohave Deserts, and Joshua trees are pushing their thick, candelabra arms up into the moonlight, a science-fiction landscape.

A mouse runs across the road. A jackrabbit. On a curve, a coyote freezes in the headlights. Frank Drake had said that the two most complex structures in the Universe are a neutron star and a human being. But all of us, mouse and man, mountain and neutron star, came from those hydrogen clouds, those accretion disks, those supernovae that occupy the astronomers. The same nucleosynthesis that produces the radiation that is bouncing off the Moon to illuminate these mountains is the process that eventually turns hydrogen into carbon, oxygen, iron—the building blocks of men and mountains. Stars explode, seeding the residual clouds of gas and dust with the elements of life. More explosions, collisions and shock waves meeting compress matter into clouds that condense into galaxies, into stars, into planets. Because all this happened, a human being and a coyote share a split second in the cold night of a California desert.

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*Behind almost every high-scoring student in Japan's competitive school system is a mother whose efforts are superhuman*

Arriving at kindergarten school in Tokyo, a boy bows to the principal as another active day begins.

Two-year-old Hiromasa Itoh doesn't know it yet, but he's preparing for one of the most important milestones of his life, the examination for entry into first grade. Already he has learned to march correctly around the classroom in time with the piano and follow the green tape stuck to the floor—ignoring the red, blue and yellow tapes that lead in different directions. With the other 14 children in his class at a central Tokyo nursery school, he obeys the "cleaning-up music" and sings the good-bye song. His mother, observing through a one-way glass window, says that it's all in preparation for an entrance examination in two or three years, when Hiromasa will try for admission to one of Tokyo's prestigious private schools.

Forty-five minutes south of the capital city by train, in the small suburb of Myorenji, near Yokohama, 13-year-old Naoko Masuo returns from school, slips quietly into her family's two-story house and settles into her homework. She is wearing a plaid skirt and blue blazer, the uniform of the Sho-ei Girls School, where she is a seventh-grader. "I made it," her smile seems to say. For three years, when she was in fourth through sixth grades in public school, Naoko's schedule was high-pressure: she would rush home from school, study for a short time and then leave again to attend *juku*, or cram school, three hours a day three times a week. Her goal was to enter a good private school, and the exam would be tough.

Her brother, Toshihiro, passed a similar exam with flying colors several years ago and entered one of the elite national schools in Tokyo. The summer before the exam, he went to *juku* eight hours a day. Now, as a high school graduate, he is attending prep school—preparing for university entrance exams that he will take in March.

A busy Tokyo mother walks her daughter to the train; back home, she may study the child's lessons.

*Photographs by Mark S. Wexler*

Little Hiromasa, Naoko and Toshihiro are all on the Japanese road to success. And alongside them, in what must surely be one of the world's greatest traffic jams, are thousands of the nation's children, each one trying to pass exams, enter good schools and attain the good jobs that mark the end of a race well run.

But such children are by no means running as independents. They are guided and coached, trained and fed every step of the way by their mothers, who have had sharp eyes on the finish line right from the start.

No one doubts that behind every high-scoring Japanese student—and they are among the highest scoring in the world—there stands a mother, supportive, aggressive and completely involved in her child's education. She studies, she packs lunches, she waits for hours in lines to register her child for exams and waits again in the hallways for hours while he takes them. She denies herself TV so her child can study in quiet and she stirs noodles at 11 P.M. for the scholar's snack. She shuttles youngsters from exercise class to rhythm class to calligraphy and piano, to swimming and martial arts. She helps every day with homework, hires tutors and works part-time to pay for *juku*. Sometimes she enrolls in "mother's class" so she can help with the drills at home.

So accepted is this role that it has spawned its own label, *kyoiku mama* (education mother). This title is not worn openly. Many Japanese mothers are embarrassed, or modest, and simply say, "I do my best." But that best is a lot, because to Japanese women, motherhood is a profession, demanding and prestigious, with education of the child the number-one responsibility. Cutthroat competition in postwar Japan has made her job harder than ever. And while many critics tend to play down the idea of the perpetually pushy mother, there are those who say that a good proportion of the credit for Japan's economic miracle can be laid at her feet.

Mrs. Masuo brings tea to Naoko, a ritual she repeats most weekday evenings for the studious seventh-grader.

Awaiting train, Mrs. Masuo reviews work with Naoko, who got into private school after three years of *juku*.

"Much of a mother's sense of personal accomplishment is tied to the educational achievements of her children, and she expends great effort helping them," states *Japanese Education Today*, a major report issued in January by the U.S. Department of Education. "In addition, there is considerable peer pressure on the mother. The community's perception of a woman's success as a mother depends in large part on how well her children do in school."

Naoko's and Toshihiro's mother, Mieko Masuo, fully fills the role of the education mother, although she'd be the last to take credit for her children's accomplishments. This 46-year-old homemaker with a B.A. in psychology is a whiz at making her family tick. She's the last one to go to bed at night ("I wait until my son has finished his homework. Then I check the gas and also for fire. My mother stayed up and my husband's mother, and it's the custom for me, too") and the first one up in the morning, at 6. She prepares a traditional breakfast for the family, including *miso* soup, rice, egg, vegetable and fish. At the same time, she cooks lunch for her husband and Naoko, which she packs up in a lunch box, or *o-bento*. She displays the *o-bento* that Naoko will carry to school (opposite). In the pink plastic box, looking like a culinary jigsaw puzzle, are fried chicken, boiled eggs, rice, lotus roots, mint leaves, tomatoes, carrots, fruit salad and chopsticks. No pb&j sandwiches in brown bags for this family.

"Every morning, every week, every year, I cook rice and make *o-bento*," Mrs. Masuo says with a laugh, winking at Naoko. "I wouldn't want to give her a

Every morning, Mieko Masuo prepares exquisite box lunch, or *o-bento*, for Naoko to carry to school.

*tenuki o-bento.*" Naturally. Everyone knows that a "sloppy lunch box" indicates an uncaring mother.

But Mrs. Masuo doesn't live in the kitchen. She never misses a school mother's meeting. She knows all the teachers well, has researched their backgrounds and how successful their previous students have been in passing exams. She carefully chose her children's schools and *juku*, and has spent hours accompanying them to classes. "It's a pity our children have to study so much," she apologizes. "But it's necessary." She says that someday she'd like to get a part-time job—perhaps when exams are over. "But at the moment I must help my children. So I provide psychological help and *o-bento* help." Then she laughs.

Toshihiro says that it was his mother who drilled him in elementary school and instilled in him his good work habits. And he says it was she who "forced" him to go to *juku* from fifth grade on, even though he hated it and "missed being able to play after school." And it was she who made sure the money was set aside to pay for his many lessons—up to $12,000 for two years before he took the junior high exam. Mrs. Masuo explains that her husband, who works for an oil company, didn't feel *juku* was necessary "because he didn't go when he was young." But, like most Japanese husbands, he works late and doesn't get involved in the children's activities. "So what happened was that Toshihiro just started to go, and afterward the subject was raised. Naoko, being the second, was no problem."

Some evenings she went with Naoko to *juku*. Mother and daughter walked the 15 minutes down the hill to the train station and took the Tokyo line four stops to Yokohama, then walked past the brightly lit shops and kiosks and along the glittering lanes that make so much of Japan's shopping streets look like Coney Island. They passed *sake* shops and bakeries, Kentucky Fried Chicken and a clanging pachinko parlor, and turned in at the modern high-rise where the *juku* occupies two floors.

Naoko studied Japanese, math and science. Today, in her former math class, the *juku* teacher rapidly explains algebra problems to 50 fifth-graders. He lectures; they listen. In a science class down the hall, a young teacher explains photosynthesis and pretends to be a drooping plant. Seated at long tables, the children listen attentively, occasionally giggling at his antics. It is almost 8:30 P.M. and many of them haven't been home since breakfast.

"Yes, it's difficult," says Masato Nichido, assistant director of the *juku*. "But most of these children like *juku* better than public school. These children want to study more. And whether they want to or not is beside the point. They must, in order to pass exams."

It is this prospect of exams, known in Japan as "examination hell," that has prompted Yukiko Itoh to expose little Hiromasa to early training in the hope that he will get into a prestigious private school. Just over ten percent of Tokyo's children attend private schools, some of which run from first grade through high school and even through university. Assuming there are no major mishaps, a child who enters one of these schools can pass the rest of his academic career without the fierce examinations children such as the Masuos must face.

Like most Japanese mothers, Mrs. Itoh spends most

In a pleasant break from hitting the books, Naoko shops for gloves with her mother on local street.

*The author, a former Associate Editor of this magazine, lives in Tokyo. She has written in these pages on Japanese horticulture and fake food.*

At a school for toddlers, mothers take notes as their children are prepped for kindergarten entrance exams.

Junior high students listen attentively to teacher; a stunning 90 percent will graduate from high school.

of her time with her son and her six-month-old daughter, Emi. Baby-sitters and play groups are not part of her life. She has dinner with the children well before her husband comes home from work. She takes them to the park, to swimming lessons and music, much of the time carrying her baby in a pack on her back. Indeed, a young mother with an infant in a sling and a toddler by the hand walking along a subway platform or a city street is a sight that evokes the very essence of motherhood to most Japanese.

This physical tie between mother and child is only a small part of the strong social relationship that binds members of the family together in mutual dependency and obligation. It's the mother's job to foster this relationship. From the beginning, the child is rarely left alone, sleeps with the parents, is governed with affectionate permissiveness and learns through low-key signals what is expected and what to expect in return.

Many American children are also raised with affection and physical contact, but the idea is to create independent youngsters. Discipline begins early. Children have bedrooms separate from their parents. They spend time playing alone or staying with strangers and learn early that the individual is responsible for his own actions. An American mother, in disciplining, is more likely to scold or demand; a Japanese mother is apt to show displeasure with a mild rebuke, an approach that prompted one American six-year-old to tell his own mother: "If I had to be gotten mad at by someone, I wish it would be by a Japanese."

Even a casual observer is struck by the strong yet tender mother-child connection. A Japanese senior high school teacher said that many wives, including his own, sleep in a room with their children and not their husbands. "Is it the same in America?" he asked. At a dinner party, a businessman made his wife's excuses: "I'm sorry she couldn't come tonight. My son has an exam tomorrow." Even if the excuse was not true, the use of it says a lot.

*You must do well or people will laugh*

The relationship of dependency and obligation fostered in the child by the mother extends to family, school, company and country, and is the essence of Japanese society. The child is taught early that he must do well or people will laugh at him—and laugh at his mother as well. "Most Japanese mothers feel ashamed if their children do not do well at school," said one mother. "It is our responsibility to see that the child fulfills his responsibility." Bad behavior may bring shame, but good behavior has its own rewards. One woman described a friend by saying: "Her son studied very hard in order to get into a good high school and he got in. She is very clever."

This attitude is precisely what gives education mothers such as Mrs. Masuo and her *o-bento* philosophy such esteem and why they take such pride in their role, even if they don't admit it. Their goal is clear: success in entrance exams, good school, a good college and a good job. (For daughters the goal has a twist: good schools lead to good husbands.)

For the majority of students who go the public school route, test scores become key and it is this fact that motivates many of the 11- and 12-year-olds traveling home from *juku* on evening trains. Many try out for the elite national junior high schools which, because of the demand, grant entrance on a combination of scores and lottery. Three years later they test again, for placement in high schools which, unlike the egalitarian lower grades, are organized according to ability. And three years after that, they test for college.

Passing the final obstacle isn't easy; only about half get into college on their first try. Many try again, for a year or two, attending prep schools and *juku,* memorizing facts for exams to come. Such students are called *ronin,* literally "masterless samurai," and even are referred to in government statistics by this term.

*A $5 billion-a-year industry*

But "exam hell" doesn't stop with college. Companies and government ministries administer highly competitive tests to prospective employees, sometimes only to graduates of the prestigious universities—a system that increases the pressure even more.

This competition at all levels has generated the "*juku* boom," a $5 billion-a-year industry of prep schools for *ronin,* cram schools, tutors and special courses. Over the past ten years, the number of children attending *juku* has increased by half—now more than 16 percent of the primary school children and 45 percent of junior high students. Attending *juku* can cost well over $200 a month.

Even the *juku* compete with each other—there are now 36,000 of them in Japan. One Tokyo *juku* administers practice exams to 20,000 youngsters on Sundays. Some of the more famous cram schools give their own admission tests, promoting jokes about going to *juku* for *juku.* Can a student get into a prestigious high school or college with just the information learned in public school? "Highly unlikely," said one local public high school teacher. "The exams are very severe."

So, in the evenings and on Saturdays and Sundays, subway platforms are crowded with students of all ages. Dressed in casual clothes or sober midnight blue school uniforms and lugging heavy black leather book bags, they are traveling to the thousands of cram schools tucked into office buildings, down side lanes and in every corner of every neighborhood.

In a gymnastics class, mothers watch body-movement exercises so they can help the kids practice at home.

Ubiquitous mothers observe children's violin lesson at a Suzuki school to better enable them to coach.

Mother encourages her son at a Sumo wrestling school near Tokyo, an aid in developing competitive spirit.

*Japan's 'education mothers'*

Mrs. Chikako Ishii, here with a son on his school's anniversary day, views *kyoiku mama* role as oppressive.

The Ishii family lived in New York for years, and their sons Masahiro and Hideaki are not sent to *juku*.

Sometimes, children are launched into the system when they are barely old enough to walk, some of them starting "school" when they are still in diapers. They learn to obey such commands as how to clench and open their fists. "The future of a child here begins with conception," said one Tokyo mother. "Schools, after-school schools, calligraphy, piano, exercises—Japanese mothers don't waste any time." A documentary film on nursery schools by the Japan Broadcasting Company followed a five-year-old named Yasukata and his mother around on their weekly activities. Every morning he went to kindergarten. Three afternoons a week he attended "special strengthening class" ($500 a month), which included rhythm exercises, simple academics and etiquette. His mother waited two and a half hours while he took the class. On another afternoon, she took him to athletics, and on another to drawing. Such preparations, the mother said, would help her son "jump the puddles" ahead of him. By the program's end, Yasukata was one of 1,066 to "chal-

Their room could belong to any American teenager, though they still put in long hours at their homework.

Mrs. Ishii opposes system's pressures, but helps Hideaki get top grades by assisting him with studies.

lenge" the prestigious Keio private school—which continues through university—and one of the 132 first-graders to gain entrance. On the same program, a mother of twin girls who had also been accepted to a famous private school said, "It's as though I have received a long-distance ticket to life."

Hoping for the same ticket are many of the mothers sitting on the benches in the large gymnasium at a branch of the ponderously named Japan Athletic Club Institute for Education of Infants (JAC for short), the school that Hiromasa attends. They are watching an afternoon class of about 50 four-year-olds in their regulation red-and-blue shorts and T-shirts. The children have finished exercising and are beginning a "voice obedience" session. Abreast in a straight line, the group is told to "hop forward to the beat of the tambourine, jump in place to the tweet of the whistle." It sounds easy but not everyone arrives at the finish line at the same time, indicating a slipup in obeying the tweets and beats. Some private primary schools might use such exercises in their entrance exams, so practice is considered practical.

Watching the mothers watch their children, JAC Director Naomi Ooka says he is dismayed by the pressure of the exams on the mothers and their children. In his view, modern Japanese mothers and children spend too much time together. "It's not good," he says.

Today, more and more educators and parents are questioning the high-pressure system that gives rise to such popular sayings as "Sleep four hours, pass; sleep five hours, fail." Educationists speak of lost childhoods, kids never getting a chance to play, "eating facts" to pass exams, and the production of students who memorize answers but can't create ideas. They cite the cruelty of students who take pleasure when their classmates fail, increasing delinquency, and high incidence of bullying in the schools.

Not surprisingly, Japanese mothers have been among the major critics, perhaps because they bear much of the brunt and witness the effects of the pressure on their children. "My son kept getting headaches and then he didn't want to go to school," said one mother. "So I stopped the *juku*." Recently, such mothers have gained an ally in Prime Minister Yasuhiro Nakasone, whose government has been seeking ways to depressurize the education system. Nevertheless, many doubt that his efforts will have any effect in a society dedicated to hard work and competition.

For on a measuring stick, the competition has surely paid off. In math and science, Japanese children rank highest in the world. They do long division before American children, take more years of a foreign lan-

guage (English), learn chemistry earlier, and are overflowing with factual knowledge about history, geography, scientific formulas and other bits of information that to many Americans would seem encyclopedic.

And the accomplishments don't stop there. A stunning 94 percent of Japanese youth go to high school. Some 90 percent graduate (compared with 76 percent in the United States) and are well qualified to take their place in the work force. At the college level, the comparison shifts: only 29 percent of Japanese high school graduates go on to college (compared with 58 percent of American graduates). It is here, at the highest level, that Japanese education is considered inferior to that in the United States. The Japanese college years are often referred to as a "four-year vacation," although a well-earned vacation since the years through high school produce students who shine.

Among Japanese who are beginning to fight the system are the increasing numbers who have lived abroad. Quite simply, they want their children to have more time to play; they want them to learn more and memorize less; they want them to be more creative and independent. Critics say that small families, small houses and modern conveniences lead to children being babied by mothers who don't have enough to do; and that mothers themselves are stifled at an age when women should have more freedom.

Chikako Ishii claims to know a better life. She spent several years in New York City with her family and is an outspoken opponent of the education mother and the highly competitive education system. "I don't think women like this role," she says, "but the competition is pushing them into it."

Mrs. Ishii teaches Parent Effectiveness Training, an approach to learning that emphasizes the individuality of the child. It's an idea long accepted in the West but anathema in group-oriented Japan, where one of the most repeated proverbs is the "nail that protrudes will be hammered down." Her two sons go to neighborhood schools. Masahiro, 12, is in the sixth grade and Hideaki, 14, is in the eighth, where he is ranked number one in his class. They do not attend *juku* and do not have tutors. "So far they're both doing well," remarks their mother. "I am watching to see how they develop."

Like those around them, the Ishiis have high expectations for their children, but their wait-and-see approach is baffling to many. "She's brave," said one young mother. "It's fine, I suppose," allowed another. "But what if she fails?"

Below: At a school playground, kindergartners enjoy spontaneous fun; hat colors denote different classes. Opposite: As her mother dutifully watches school festivities, a young girl allows her thoughts to wander.

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The Accord

*By Joanne Omang*

# In the tropics, still rolling back the rain forest primeval

*Costa Rica's farsighted conservation plan is still losing ground to coffee, cattle and folk who simply need a place to live*

On every side there were splashes of impatiens gone wild, brilliantly pink and white and twice their U.S. size. Slogging up and down the slippery jungle path, we try not to step on them, but this is no garden and to Guadalupe Barrantes Molina the delicate flowers are just another dry foothold.

Lupe, as his family calls him, is taking us up the mountain to see his *parcelito* of slightly more than two hectares (six acres), a little piece of Central American rain forest he began clearing of trees three years ago in order to have a home and to grow coffee beans.

We step into a lush green bowl open to an unexpectedly cool northern breeze. Above us to the east, as if ready to fall off the hills, towers the virgin triple-canopy jungle of the Juan Castro Blanco Forest Reserve, one of Costa Rica's last-ditch strongholds in the battle to save its rain forest. Through the humid haze to the west and south we see a patchwork of farms dotted with isolated junk trees left behind by the cutters, and to the north a deceptively parklike vista of pasture that once had been jungle too.

The clearing, a quarter-mile across, lies two muddy miles southeast of the town of Aguas Zarcas in north-central Costa Rica. It sprouts haphazard rows of coffee bushes between rotting hulks of giant trees collapsed every which way, like huge mossy jackstraws, where Lupe had felled them. The path back to the road is too steep and narrow for any transport but a man's back, so the two-ton logs that elsewhere mean serious money are just another annoyance here, something in the way of sun and water for farming, just as they have been to generations of farmer peasants like Lupe.

Lupe is 52. It took him a month, working alone with his machete and a small gasoline-powered chain saw, to flatten the clearing, planting coffee as he went along. Later he put in a little corn to feed his animals, and clumps of cilantro and yuccalike ñampi roots to sell in town. He works slowly, taking down trees only when he needs more space for planting, and in places the fecund jungle is ahead of him. It feeds, as it did for eons before the loggers came, on the decaying wood of fallen giants, and in one corner of Lupe's plot, slim secondary-growth trees are already 20 feet high.

But in rain forests across Costa Rica, throughout Central America, in Brazil, Africa and worldwide, other trees are coming down at a much faster, deadlier rate—one that has only lately been recognized as a potential disaster for the entire planet. By 1992, despite its efforts at conservation, even Costa Rica could be almost treeless. Around the world, forests enough to cov-

Near Juan Castro Blanco Forest Reserve, hauler yokes a two-ton log to tractor for towing to the sawmill.

*Photographs by Peter C. Poulides*

Lupe Barrantes' two-hectare *parcelito*, partly cleared and planted in coffee, is rife with wild impatiens.

er the entire state of Tennessee—more than 11 million hectares—are destroyed every year for firewood, lumber, cropland and cattle pasture.

As the trees die, so do countless thousands of insects, birds, vines and other plants and animals, many of them never catalogued or studied for possible human use. Contrary to its appearance, the land beneath the forest is usually poor. When planted, it tends to yield crops for only two or three seasons. Then most of it is lost to erosion and to the peculiar sun-baking process that transforms it into rocklike laterite. After that, rivers turn brown, clouds stop forming over the barren hills, rain patterns shift. The land begins to die. Its people become poorer, sometimes more desperate: in some places they are easy prey to politicians whose promises have nothing to do with planting trees.

The basic story by now is well known. Environmentalists' alarms have started conservation efforts. Costa Rica's new parks (SMITHSONIAN, September 1979) and forest preserves take up more than 20 percent of the country's territory, a pioneering amount for Latin America. Attention has been paid to restraining large timber companies. But people like Lupe, as well as tens of thousands of refugees from Nicaragua and El Salvador in need of land to live on, have not been incorporated into possible solutions, and so are part of the problem. Like Lupe, too, a lot of people in Costa Rica are at the hands-on level of deforestation—cutting trees, hauling them out of the hills and to the sawmills, often failing to enforce the conflicting maze of laws that govern the use of wood.

### *"It is one of the ways we keep alive"*

We are visiting Lupe in an effort to look at the situation from that perspective. His wife, Ana, 45, cooks rice and beans on a woodburning stove. He makes charcoal by slow-burning any hardwood he can find for three days under a blanket of wet leaves and earth. But that is to sell in town, not for Ana to use. He says, "It is one of the ways we keep alive."

Hermes Andreas, four, is at home; Gisel, nine, and Jose Francisco, eight, are in school, an hour's walk away in Aguas Zarcas. "It's better here than it was in Naranjo," her hometown 18 miles to the south, Ana says loyally. "It's quiet and you can do what you like."

Sugar cane, bananas and coffee bushes grow within two feet of their four-room, aqua-blue shack, which sits on cement blocks already embedded in mud. Lupe built it from wood off his land, and he seems embarrassed at its tin-roofed simplicity. "We hang on by our fingernails," he says. The only real furniture is a sagging iron-rail bed; at its foot are a stalk of green bananas and a clucking hen in a basket. "That's where she leaves five colones every day," Lupe jokes. That is

fairly expensive for an egg, coming to about ten cents.

Every cent counts. Unlike most of his fellow countrymen, Lupe is illiterate, and unskilled by American standards, but he is fulfilling his lifelong dream of becoming a *dueño*, a *patrón*, a landowner, master of his own fate. That is why he cuts trees. Before he obtained his *parcelito* from land grants created during Costa Rica's land-reform program of 1969, he was a day laborer, building roads and other people's houses. "I had nothing," he says, "no future, no life."

Then, in 1976, the Institute of Agricultural Development, with funds provided by the Costa Rican government, bought out one large farm on the shoulder of the Juan Castro Blanco Forest Reserve in Alajuela Province, divided it into 42 *parcelitos*, and gave cheap loans to landless people so they could live while they cleared the trees to plant crops that would finance the purchase. Lupe hopes to pay off the $480 purchase price by the time Hermes is grown so that the boy will have that richest of treasures, inherited land.

Lupe's neighbor Rafael Angel Gonzalez, 46, feels the same way. "I used to have to work for a *patrón*, but now the *patrón* is me," he says proudly. More educated than Lupe, Rafael has installed a noisy gasoline-powered generator. Each room has a light bulb and there is even a television set. Rafael's son and daughters ignore us in favor of a Costa Rican variety show as we remove our mud-caked boots. The talk, shouted over the TV and the rain thundering on the tin roof, turns to trees, bureaucrats and the law.

Rafael says he heard about the problem of deforestation on the Voice of America, and he nods in grave agreement. But the morass of laws governing forest management often hinders the best of intentions. "A friend of mine wanted to cut down some more trees and tried to do it legally," says Rafael. "He waited a year and a half. The bureaucrats don't enforce the law and they like extra pay," he says, rubbing his fingers together. "They know nothing. They like to read the newspapers in their offices."

Lupe and Rafael obtained their *parcelitos* under a revision of the forestry law that leaves them, subject to certain restrictions, essentially free to cut down any tree on their property. And though the forest reserve adjoining their holdings shows bare patches like moth holes in a green carpet, few if any campesinos like Lupe and Rafael will admit to cutting trees illegally.

In 1985 still another change in the forestry law set up a permit system that was supposed to shelter every tree in Costa Rica—with offenders subject to fine and/or jail. That should have been that. Unfortunately

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Little by little, working alone with a machete and small portable chain saw, Lupe clears his land.

Lupe's wife, Ana, cooks tortillas on woodburning stove in dirt-floored kitchen next to their four-room house.

Rain forest chopped back into rough pasture like this has provided thousands of hectares for cattlemen.

the situation is further complicated by the existence of an old homesteading law, a holdover from colonial days, that still offers large tracts of land free to ranchers capable of "improving" them, which usually means that trees have to go. In theory such homesteaders, unlike Lupe and Rafael, are supposed to get tree-cutting permits, but few bother. For one thing, local judges are naturally loath to imprison people for what was, until recently, regarded as the virtuous act of cutting down trees. As for fines, logging firms and wealthier landowners find it easier to pay them than to obey the law. It was only last year that efforts began to end this confusion. President Oscar Arias Sanchez created a new ministry to oversee management of all natural reserves and national parks. The ministry is also working with private organizations to develop a national conservation strategy by 1988.

*Each year about 57,000 hectares are lost*

"We have recognized the problem, but this is not a rich country," says former Forestry Department Director Jorge Rodriguez. "Once social security, education, the courts and prison systems are all paid for, there's not much left."

That is one reason why an estimated 57,000 hectares of forest are still denuded every year, more than a third of them illegally. The pace is accelerating, too. In a country of 5.1 million hectares, somewhat smaller than West Virginia, forests took up 3.2 million hectares or 65 percent of the land in 1940, and held fairly steady until 1961. But Costa Rica's population was growing, and then the U.S. cattle market boomed along with the explosion of hamburger chains. Construction demands skyrocketed, ranchers wanted to clear land fast for cattle, and the loggers got organized.

Trees now cover only 1.3 million hectares, or 26 percent of the territory; nearly .8 million of those hectares are protected only because they are in national parks or natural-reserve areas. Three-quarters of the deforested land is in pasture, the rest in farms. Erosion is considered "serious to critical" on 40 percent of it. In sum, Costa Rica has been deforested faster per capita since 1977 than any other Latin American country, and if the trend continues it may have to start importing lumber by 1995 to meet its own construction needs.

Costa Rica may have more than 12,000 species of plants and at least 2,000 kinds of trees, but to Rafael and Lupe and even to many inspectors, a tree is either big or small, hard or soft, and its value is tallied accordingly. Only two of the trees that Lupe cut were big and hard enough to sell and also (a crucial matter) close enough to the road for truckers to get at them. One tree brought him 3,500 colones, about $70, he says proudly. For the other he received only $35.

# THE ULTIMATE VISION: EYES FOR THE BACK OF YOUR HEAD.

To see some accidents coming, you'd have to be born with radar. But you're not, so GM is working to give you the next best thing. Radar for your car. The option to "see" all around you, all at once. It's called Obstacle Detection. Just one of the many safety features GM is developing for cars of the future.

Obstacle Detection will operate by sensors strategically placed all around your car which will sense and warn you of obstacles you're approaching, giving you a chance to avoid them.

At GM, we can't prevent all accidents from happening, but we want to help you steer clear of as many as we can.

THE GM ODYSSEY: SCIENCE NOT FICTION

GM

"Deforestation is not our fault," says trucker Uriel Montero; "the owners of farms cut everything down."

Raphael complains that the inspectors are not paid enough. He is certainly right. We learn from Arturo Ulloa Vega, 31, a forestry engineer in charge of the Juan Castro Blanco reserve, that his guards earn a base salary of 9,500 colones ($190) a month. He himself earns only $210—about what Rafael and Lupe can make by selling three or four big trees. Guards are prey to temptation, and there is only enough funding to pay four of the 16 guards required to oversee the 18,000-hectare reserve. "We only have two vehicles and we can only buy 120 liters of gas a month," he explains.

As a result, between the peak logging months of March and July 1986, inspectors reported only 17 illegal incidents in the Blanco reserve. All the nation's prized parks show logging damage, including the 7,700-hectare La Zona Protectora La Selva in the northeastern part of the country, where biologists are trying to count the teeming varieties of life at stake there (*Phenomena*, July 1986). The whole country harbors at least 758 species of birds, 620 of them permanent—more than all of North America north of Havana. Costa Rica's rain forest, like rain forests throughout the world, is one of the richest ecosystems there is, and a virtually untapped potential source of medicines, crops and food. But if the forests die, the wildlife dies too, perhaps forever.

We drive to the roadside checkpoint for logging trucks at Terron Colorado, the southern end of a new highway to Los Chiles being built with U.S. aid on Costa Rica's northern border. It is the job of Wilson Barrantes (no kin to Lupe), 27, the inspector there, to see that the driver of each passing truck has a document listing the logs aboard and bearing a stamp that proves a ten-percent tax was paid on each. Traffic has been heavy since the new road began pushing north because, for the first time, it has made cattle land cleared of jungle ten to 20 years ago accessible during the rainy season. Now farmers and squatters find they can not only cut and sell the primary vegetation but market the secondary growth as well—the young trees that spring up in every sunny spot that isn't planted.

If the logging trucks don't stop, Barrantes makes out a complaint. But complaints take weeks to process and although the law allows fines and up to two years in jail for violators, loggers find it easier to pay. The fine is usually less than the value of a truckload of logs.

An older trucker, Uriel Montero, 51, is one of the 1,000 or so independent log haulers in Costa Rica whose 24-foot flatbed diesels can muscle their way out of axle-deep mud even under a ten-ton load of tree trunks. Without such trucks, deforestation would move only as fast as Lupe can cut by hand—a few acres a year. But with the help of truckers, a small farmer can cut trees from January until the rains start in June.

"Deforestation is not our fault," Montero says in his breezy living room in Zarcero, 35 miles north of San José. "We only haul trees 12 to 15 inches across—or bigger. The owners of the farms cut everything down because it's easier to plant that way." In fact, Montero sees no real problem: "They said 50 years ago

Sawmill manager Nautilio Arroyo accepts only logs with a tax brand. Many mills are not so careful.

# The last time someone took your walking as seriously as we do.

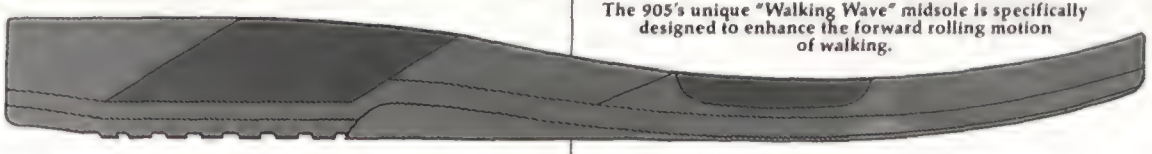
You were too young to remember the fuss your mom and dad made over your walking.

But you're at a perfect age to appreciate the way we at New Balance have responded to the walking you do today.

*A STEP-BY-STEP ANALYSIS OF THE WALKING MOTION.*

At New Balance, we know a lot about the biomechanics of running. As well we should. Running has been our stock-in-trade for years.

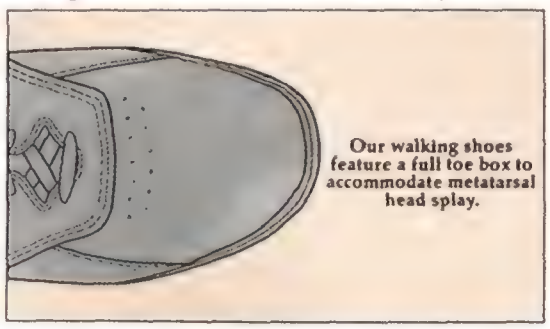
As it happens, the same scientific techniques we employ to gain a better understanding of running have helped us better understand the biomechanics of walking.



The 905's unique "Walking Wave" midsole is specifically designed to enhance the forward rolling motion of walking.

Consider the basics:

During walking, the point of impact—that moment when the foot hits the ground—is limited to the heel. At heel-strike, the foot is at roughly a 45° angle to the ground. Rather than springing forward, as the foot does in running, it rolls forward slowly, dwelling on the ground for an extended period



Our walking shoes feature a full toe box to accommodate metatarsal head splay.

of time. And toe-off—the push generated by the toes at the conclusion of the gait cycle—is full and complete.

To get the most out of your walking, you need walking shoes specifically designed to promote and enhance each of these interrelated motions.

You need New Balance.

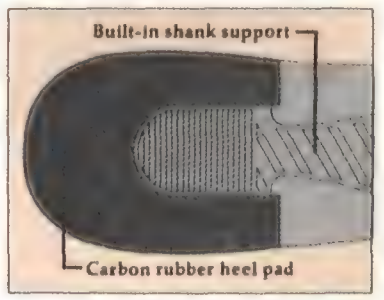
*IN ALL YOUR YEARS, YOU'VE NEVER WALKED BETTER.*

To understand what we bring to walking, take a moment to review our top-of-the-line WK905 walking shoe.

Consider the technically advanced C-Cap™ "Walking Wave" midsole, made of four different densities of EVA. The densities work in sequence with one another, first cushioning heel strike, then enhancing the foot's forward rolling motion and finally promoting full toe-off.

Consider the microcellular rubber outsole with its built-in shank support to prevent strain of the plantar fascia (the connective tissue that supports the arch) and its durable carbon rubber heel pad.

Consider the Ultra-Napp leather upper that remains soft and good-looking, year after year.




And consider the fact that the 905, like the other shoes in our line, comes in a variety of widths, *ranging from AA to EEEE.*

It's simple, really. The more seriously you take your walking, the more you'll want to take New Balance along.

CRAFTED WITH PRIDE IN U.S.A.

new balance® WALKING

*The 905*

*The 605*

*The 505 for women*

*The 605 and 505 are also available in black.*

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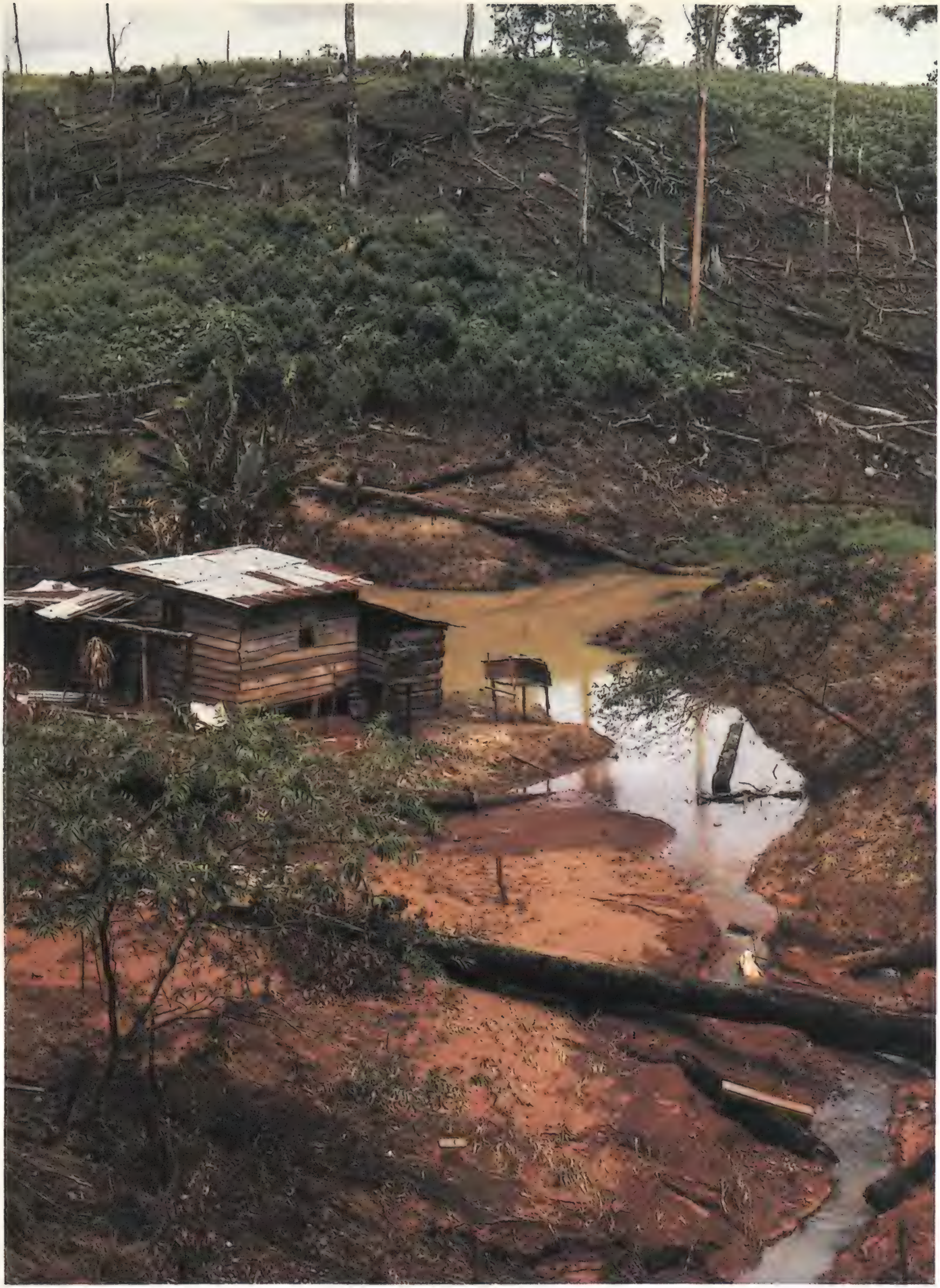

As a result of deforestation and erosion, Costa Rica loses about 860 million tons of valuable soil each year. Ex-forestry official Alfaro Rodriguez notes ironically, "Topsoil is our largest export."

that all the trees would be gone in ten years and nothing happened. It's the same old song."

A dozen years ago Montero drove the town ambulance and bought a small pick-up truck to do odd jobs for a little extra cash. A Peace Corps project was set up to give loans to small businessmen and Montero got one to buy a big truck. With the help of his four sons he now operates two full-size trucks, hauling logs, cattle, fertilizer and milk. The money is good, he admits: the new truck cost him 1.6 million colones, or about $32,000, but he paid it off in two years.

Montero is vague when asked about the forestry law. "You can cut as much as you like if you pay the tax," he says finally. His son Marco, 25, corrects him. "No, no. Under the new plan it is controlled and you have to plant new trees also." Is the plan working? Marco admits some people he knows paid under the table. But he thinks things are better now.

*Many people cut down trees at night*

We look for the tax man at the Gavilan sawmill in the town of Pital, northeast of Aguas Zarcas. Several thousand logs, each one huge and bearing an indented mark like a brand, are piled there in small mountains across 50 acres of mud. From his office safe, Humberto Ugalde takes the square, two-headed hammer with which he had made those marks. As the tax is paid by the logger, Ugalde slams the end of each log, once with the side that says "76" for the area code, once with the side that says "DF" for *Dirección Forrestal* (Forestry Department). "Nobody may use this hammer but me," he says proudly.

The manager of the mill, Nautilio Arroyo Vargas, says he accepts only branded logs, and his register shows the type, size and value of each giant trunk entering the mill. But Ugalde only works days, and he is the only inspector in the area: "Many people cut wood at night for mills less careful than this one." He has been offered "things you wouldn't believe" for the chance to swing his hammer a few times.

Costa Rica's lumber industry employs 6,000 people full time and puts an estimated $2 million into the economy every year. Forestry engineer Ulloa's control region includes the area on the new northern road to Los Chiles, and he sends us up there to look for old-timers who have cut down trees all their lives. The road is muddy and potholed. Everywhere, however, people are surprised to see two gringos in this hard-to-reach area. Smiling, they invite the strangers in out of the intermittent downpour. One is Juan Arce Muñoz, 64, a gnarled tenant farmer who lives in a tumbledown hut near San Ramón with a dog he calls Lasi (Lassie) and a cat, Minga, amid a few pineapples and a slash-and-burn wasteland of charred logs.

"The owner doesn't like agriculture; he only likes cattle, so he lets me live here to farm for him," Arce says. After making sure his visitors know how to read, he proudly displays a three-year contract with the landowner. "*Peóns,*" he says, cut the trees down when the weather is dry.

The word *peón* rings harsh to our ears. It means much the same in Spanish as it does in English: an unskilled, low-paid laborer with little chance of ever doing better in life. In Arce's world it is factual description, not an insult. Lupe had told us that before he owned land he was a *peón,* too.

On the good road north, we meet the man Lupe would like to become: a successful farmer, a man with options. Ten years ago, Serafin Chavarria Mora, 48, cleared 160 hectares of virgin jungle in order to raise cattle. He became one of thousands of Costa Ricans whose cattle, lean and grass-fed, were cheap enough to supply the fast-food hamburger market in the United States. Fat U.S. steers are too expensive for 50-cent burgers, and U.S. Department of Agriculture rules about hoof-and-mouth disease bar imports from nations farther south than Panama. As the American

"Living fences" made by planting fast-growing laurel trees are part of the reforestation program.

Serafin Chavarria cleared 160 hectares in 1976 for cattle, now is switching to ornamental dracena plants.

demand for burgers skyrocketed, so did the perception of cattle ranching as a status symbol, and with it easily obtained loans from international development agencies to open forestland to rangelands in Costa Rica. Chavarria flattened his forests and bought cows.

"For seven years I raised cattle here, but that's over now," Chavarria says. In the past three years, the development of slimmer, cheaper U.S. steers and the increase in what he calls "propaganda" against red meat by health advocates have contributed to a sharp decline in U.S. demand for Costa Rican cattle. "Now I'm raising ornamentals," he says. Where once jungle trees covered the hillside, and later herds of cows cropped the grass, orderly rows of chest-high dracena plants now march nearly to Chavarria's horizon.

Chavarria could plant fast-growing trees, such as teak, on this land and make a fine long-term profit of at least 500 percent. But the first sale would not come in for a decade and the full profit would take 25 years. Ornamentals are profitable within three years.

His oldest son, Juan Carlos, has just graduated from the Central American School of Animal Husbandry (*Escuela de Ganaderia*) in Atenas, just outside San José, where his second son, Warner, 18, is still a student. "The boys put a lot of pressure on me to plant trees," he says with a smile. "But they don't have to balance the books." Juan Carlos, 22, grins at his father and says his goal is to get the old man to plant experimental plots of fast-growing trees, gradually phasing in those best suited for the area to become the farm's major crop. "There is going to be a serious shortage of trees here in a few years," he says. "It will be better to have good lumber trees than almost anything else."

It is clear that the reforestation message is beginning to be heard. In Costa Rica you often see men fencing pasture with curious posts that clearly have roots. They are debranched, fast-growing laurel trees (*Cordia alliodora*), provided by the Forestry Department and bred for the purpose of becoming living fences. Already green-topped posts march across miles of rolling pastureland, slowing the wind, holding the thinning soil and offering a little shade to cattle.

Costa Rica has 60 to 200 inches of rain a year. In vegetated areas, a third of any rainstorm is absorbed into the greenery, a third evaporates and a third runs off. Where there are no trees, nearly all the water slides off the hardened soil, washing out homes and struggling crops. The runoff recently caused flash floods in parts of Costa Rica where such a thing has never happened before. Orlando Alfaro Rodriguez, formerly of the Forestry Department, estimates soil loss at 680 million tons a year: "Topsoil," he says with a touch of irony, "is Costa Rica's largest export."

Alfaro, a cattle rancher, was educated in forestry and served as regional director of the Forestry Department for six years. Now he is vice president of a cattlemen's conservation and development group known as CODEFORSA. "People are beginning to see that pretty soon the forests will be worth more than anything else they can grow," he says, "and that could save us." A $23 million Inter-American Development Bank loan that has been awaiting approval for ten years and $6 million from the West German government could help Costa Rica boost conservation. The official target is to replant 30,000 hectares a year.

*Thousands of seedlings for future cash*

A 2.5-hectare nursery at Muelle San Carlos is studded with thousands of inch-high laurel seedlings, some redwoodlike pochote (*Bombacopsis quinatum*), a yellow furniture wood called surá (*Terminalia lucida*) and a few towering teak trees. The teak (*Tectona grandis*) could be a moneymaker, but in the Costa Rican climate this variety is growing too high too fast to be as strong as it should be. Two years after planting, it is already 30 feet tall and five inches across.

The three-year-old nursery produced 100,000 seedlings its first year and 750,000 in 1986. It aims at providing one million per year to CODEFORSA's 250 member-ranchers by the end of 1987. On 20 acres of his own land nearby, Alfaro has sold off the cattle and planted young trees to launch a private tree farm. "If I can produce three million trees a year," he says, "I'll be helping to save the country and grow rich besides."

It is a long way from Lupe and Rafael and their *parcelitos*, where trees are a nuisance they can sell now for ready cash, to Alfaro and his seedling farm, where

trees are a potential treasure to be sold later. The government would like to bridge that gap, but more is involved than attitude.

Alfaro and his friends are used to the bureaucracy and its quirks. They can fill out its forms and work its levers in ways that would never occur to Lupe. For him and for Rafael there are no tax credits or investment incentives, no rewards for planting new trees. There are only penalties to be had for the cutting down of trees, and occasionally inspectors with their hands out.

For Lupe the rain forest is still an adversary standing between him and a good coffee harvest. Lupe's children are too young to help, and Ana doesn't seem to want much more out of life than a new stove. But Rafael and his wife now watch television, and soon, she says, they might go shopping for a car. The big trees loom over their house like money in the bank.

Fast-growing trees, such as this teak seedling, may help Costa Rica's timber industry and declining forests. This species grows too quickly for quality wood, but others are good for furniture, export.

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# QUICK! WHICH IS THE PHONE, AND WHICH IS THE COMPUTER?

Once, a phone was a phone and a computer was a computer.

And anybody could tell the difference.

Today, however, telephones routinely boast computer memories, computer intelligence, even computer screens.

And computers are discovering the power of networking, as telephones already have.

The name of the game is getting the right information to the right people at the right time.

Because being able to do that easily will make our work more productive and our lives less hassled.

And that's what AT&T is all about today.

Our goal is to do for information what we've already done for conversation.

To accomplish that, the people at AT&T Bell Laboratories are working to combine everything you like about telephones with everything you expect from computers.

So computers will finally deliver what they have been promising for decades.

Consider some examples: Some day soon, instead of being limited to the new cars available in a dealer's inventory, you'll be able to sit down at a computer terminal in the dealer's showroom and enter the model you want, the engine, the options, the color, etc.

A data network will automatically translate your order into instructions to dozens of suppliers and plants in the production process. The result is a custom-made car delivered faster than you ever thought possible.

In banking, powerful and versatile data networks could mean loan approval in minutes instead of weeks. And account balances that are always current.

In retailing, a chain whose stores employ a data network could always have hot-selling items in the stores where they're selling hottest. Pleasing both the customer and the company controller.

The idea is networks which not only move information instantly, but which also interpret it, rearrange it and apply it in the most useful way. All automatically.

Just as the AT&T long distance network handles a telephone call, instantly, intelligently, automatically.

Which is to say, we're very close to the day when you won't be able to tell a phone from a computer, and won't even care.

But until then, the phone cord is the one on the top.

AT&T

The right choice.

So intense was Agnes Moorehead's performance in "Sorry, Wrong Number" she once collapsed on table at finish. First aired in 1943, the "ultimate murder show" had sound effects done by Bernie Surrey (left).

*By Leonard Maltin*

# They're tuned in to the 'thrilling days of yesteryear'

*The Lone Ranger,* Suspense *and Fanny Brice may be gone, but SPERDVAC's members make sure such radio classics aren't forgotten*

My wife, Alice, and I have always enjoyed going to garage sales, but in Los Angeles it's a special treat. L.A. is very much a company town and the company is Show Business. You might rummage through the leftovers of an aging actor, a script supervisor, a sound technician—and you never know what you'll find.

Recently we saw an enticing sign just around the corner from our house. It read "Fabulous Estate Sale," but the reality was far from that. Mostly broken-down appliances and leftover house paint. Then I spotted something on the ground: a radio transcription disk in its original brown-paper sleeve. I'd seen them before; they look like record albums except they're bigger (16 inches versus 12). These recordings of broadcasts were made in the years before magnetic tape; never intended for use outside radio stations, they could be played back only on special turntables.

*A bargain price for Lucille and Franchot*

There were three small metal cases full of the disks. I flipped through the stacks. The labels identified most of them as informational programs from World War II featuring Hollywood stars ("Price Controls" with Lucille Ball; "Rationing" with Franchot Tone). I asked how much the owner wanted and he said $5 apiece. I thought he meant per record, but Alice understood him better—he meant $5 per case. Trying not to look too eager, I handed over the money.

Once home, I knew exactly what to do: call SPERDVAC, the Society to Preserve and Encourage Radio Drama, Variety and Comedy. Larry Gassman answered the phone as he always does (unless his brother, John, is closer by) and when I told him of my find he started asking questions. Were the disks glass-based or aluminum-based? (How could I tell? "If light shines through, they're glass," he explained.) Were the labels white or yellow? (Some of each—what's the difference? "Yellow labels indicate 'master copies.' ") He told me I'd be hearing from Dick Mullins, a club member who'd pick up the disks and have them transferred to tape.

Dick stopped by a few days later. He is an accountant at ABC-TV in Hollywood, but he volunteers his time to SPERDVAC and helps rescue precious transcription disks. If improperly cared for, these records warp and the wax coating comes off its backing. Or they break; the glass ones are extremely fragile. He checked a few of mine with the eye of a jeweler, looking for flaws and (fortunately) finding none.

"I've talked to some of the old engineers and learned a lot of their secrets," Dick told me. "You can get almost a high-fidelity sound if you know what you're doing." He obviously does. Later, when he handed me a cassette tape of his first transfers, they sounded great. The shows were fascinating time capsules from the early 1940s, using top actors, writers and musicians to help the public understand through skits and speeches the reasons for price controls and rationing.

I beamed for a month over my garage-sale treasure. It wasn't just a matter of getting a bargain; it was finding a little chunk of history that otherwise might have been discarded. Some of these disks are unique, the only remaining form of a long-ago broadcast. But my treasure would have been worthless if there hadn't been SPERDVAC to rescue and restore it.

The club is headquartered in Southern California, close to one of the centers of network radio (and many of its survivors), but it has members throughout the nation who assemble for an annual convention, contribute to a monthly newsletter and borrow tapes by mail from its collection, which numbers in the thousands (the catalog alone runs beyond 200 pages). Though it boasts many professional ties, this is a volunteer group of amateurs and enthusiasts who do what they do for the love of it.

Larry Gassman, 32, is the current president and his twin brother, John, is on the board of directors. They man the official phone line, answering questions and acting as a clearinghouse for information about old-time radio—not just for members but for the radio and TV industry as well. (Actor William Conrad once requested copies of an old show called *The Fat Man.* Researchers for an NBC-TV anniversary program asked for the whereabouts of several veteran radio artists.) Larry is usually host for the monthly meetings where old-time radio performers, writers, directors and musicians come to share their memories with an avid audience, while John tape records the proceed-

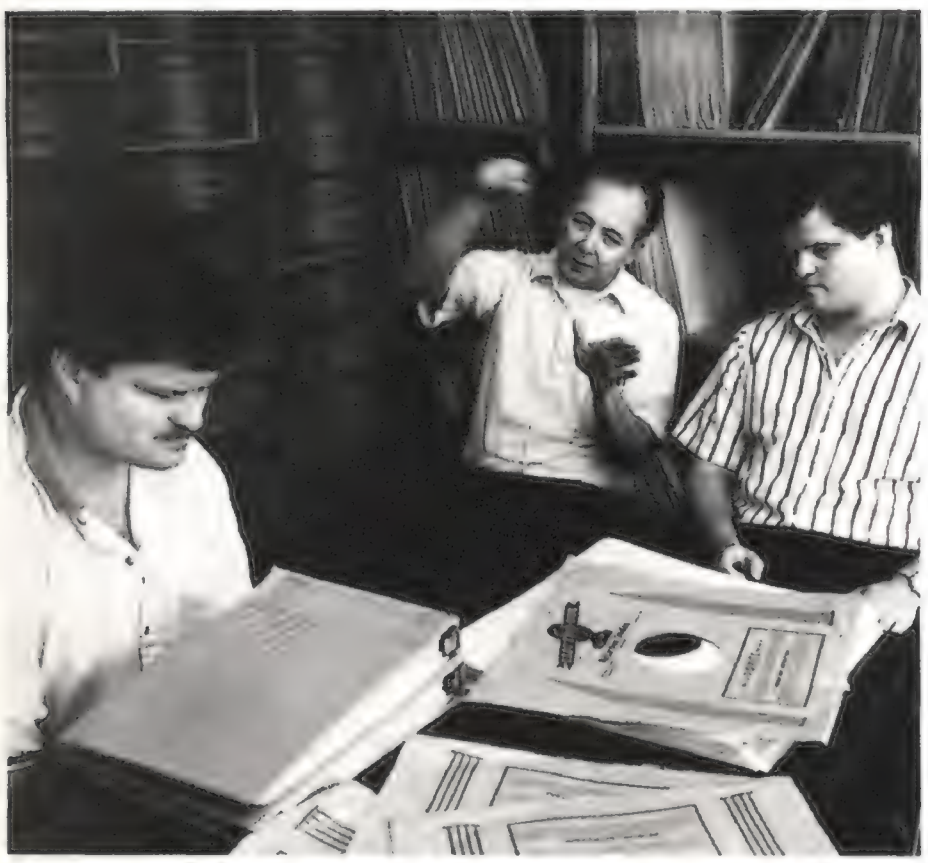
Jerry Haendiges, a SPERDVAC founder, holds glass-based transcription disk in club's vast collection.

*Photographs by Leigh Wiener*

ings for posterity. The twins' all-consuming interest is either appropriate or ironic, depending on your point of view: both are blind. But lack of sight is never an issue and doesn't seem to hinder their work. In fact, one of their most important responsibilities is the maintenance of the tape and disk archives (below) housed in a building close to their home in Whittier. SPERDVAC has one of the most important and best-maintained radio archives in the world, including about 9,000 original transcription disks—and the Gassmans know its contents almost by heart.

"I would say the first turning point in the collection was the donation we got from the Cecil B. de Mille estate," says Larry. "They donated 250 *Lux Radio Theatres*." Adds John, "Two hundred-*forty*." They correct (and kid) each other, especially about radio, where they both qualify as walking encyclopedias. "We try to be meticulous," says Larry. "Numbers and dates and things just kind of pop out." Says John, "We have to remember a lot of stuff, so we tend to use our memories a lot more." Not that they rely on memory alone: the catalog of their private collection comprises "16 or 17 notebooks full of Braille paper." For the club, they use a tape recorder as their talking file.

Like all of the younger members, John and Larry were introduced to old-time radio long after its demise. Yet the first time they heard episodes of *The Shadow* and *The Green Hornet* being rebroadcast in the early '70s, they were hooked. And they found that the young man doing the programming, Jerry Haendiges, lived close by. Thus began both a friendship and a collection. Haendiges lent some of his tapes to the Gassmans and clued them in to other sources of old shows. He also told them about a club he was thinking of starting with collectors Jim Coontz and Kevin Stern. SPERDVAC's first meeting was in 1974, but the Gassmans couldn't get seriously involved until they finished college in '79 (each with a B.S. in communications).



John and Larry Gassman flank Jerry Haendiges in archives; at left, volume of brothers' Braille catalog.

Bobb Lynes remembers that first meeting, which was held in Reseda. He even remembers the date: November 9—SPERDVAC people tend to be like that. Lynes has worked for 24 years as a sign-layout artist, but old-time radio has been his avocation since the mid-'70s. Unlike the Gassmans, he grew up listening to radio in the '40s. His favorite was *Tom Mix* ("It had action, adventure—it was perfect for a kid's show. And *Tom Mix* had such great premium giveaways. I sent for most of 'em, even though the cereal you had to eat to get the box top was terrible").

Bobb never thought of collecting his old favorites until the nostalgia craze of the '70s brought forth mail-order companies that offered radio shows on cassettes.

Accidentally or not, Norman Corwin's reach, as he talks at home in California, symbolizes the breadth of

his renowned radio scripts: from Satan's assault on Christmas to a nonfiction VJ-Day prizewinner (1945).

main separate and sacrosanct. Bobb has about 10,000 shows on tape; Barbara is up to almost 20,000.

Barbara Watkins is one of the most avid enthusiasts. "I used to be an attorney—until my hobby overtook my 'real' life," she explains. "For the past year I've spent all my time on my hobby. I no longer go to department stores, I don't have a new car—but life is short, you might as well enjoy it." As editor of the *Radiogram* newsletter that goes to SPERDVAC's 1,100 members, she puts in 150 hours a month; she's also chairman of the sound-upgrade committee, which tries to improve the quality of the club's lending library.

Just what is it about old-time radio that draws people to it and turns so many into compulsive collectors? Perhaps the best answers come from the ones who made it happen. Though many went on to even higher acclaim in other fields, they all share an abiding love for radio. "It was far and away the greatest medium of all," says Don Ameche (p. 77), who started in 1930 in Chicago and later became host of *The Chase & Sanborn Hour* with Edgar Bergen and Charlie McCarthy. "And the reason behind that is very simple. The listener had to make a contribution, and his enjoyment depended totally upon the *amount* of contribution he made. If you had, as you always did, a leading lady and a leading man, and there were ten million listeners, then there were ten million *different* leading ladies and ten million *different* leading men. Each one of them had an idea of what the characters were like."

Bob Hope agrees. Not just a radio star, he was also a

He also discovered several local programs that played vintage shows. When Kevin Stern asked for volunteers to help prepare his weekly *Don't Touch That Dial* broadcast on KCSN, Bobb answered the call—and eventually took over. He's been on the air ever since, on as many as four community- or college-affiliated stations every weekend, spreading the good word. He certainly helped get me hooked and I know I'm not the only one: many people at SPERDVAC gatherings have heard him talking about the club. His proselytizing has affected his private life as well. In 1979, a listener named Barbara Watkins went to a club open house where the guest speaker was noted radio writer Norman Corwin (above). She would have gone sooner, she says, but she was put off by Bobb's description of members as "old-time-radio preservationists." She confesses, "That sounded too serious for me, I was just a fan." But she became involved—with the club and with Bobb (right). They've been together since 1979 and, using the nom-de-radio "Barbara Sunday," she's been cohost on one of his broadcasts since 1980. Even after seven years, however, their collections re-

Bobb Lynes, Barbara Watkins are on the air weekly to champion old programs—and to make new converts.

"A mass caricature of radio talent" is what *Fortune* called painting by Miguel Covarrubias (SMITHSONIAN, November 1984) in May 1938 issue. It helped illustrate a major examination of the entire radio industry.

radio fan. "When I used to listen to *Amos 'n' Andy*, I had a picture in my mind of what the Fresh Air Taxi Company looked like and what the Kingfish looked like. I could see it all."

Arch Oboler, who wrote and hosted the memorable *Lights Out* series (strange tales that predated TV's *The Twilight Zone*), has always called radio the "theater of the mind" and that's exactly what it was. Because the audience had to draw on its own imagination, the images were heightened and in some ways more vivid than anything shown could be. One of his most potent episodes dealt with a quarreling couple who suddenly found a hideous monster sitting in their apartment. They are paralyzed with fear and unable to take their eyes off the creature. Forced to stop arguing, during a long night they finally start to talk and to understand the source of their mutual bitterness. As their voices and attitudes soften, the monster disappears; it was simply a personification of the hatred that had grown within them. Still gripping and effective today, if this drama were "literalized" on TV—if you could see the monster—it would lose all its power. It was designed to work in concert with the listener's imagination: a perfect radio play.

"It was a very intimate medium," Oboler explains. "I needed no special-effects department other than the imagery. I could with a word, a strain of music, a bit of sound, make the terror and horror pictures look as true as a Model-T Ford against a Ferrari."

So it is that even today, people who grew up listening to radio have indelible images in their minds: Jack Benny's sputtering Maxwell and dungeonlike money vault, Fibber McGee's calamitous closet, the filtered voice that could cloud men's minds in *The Shadow*. To a generation raised on television these names may mean nothing; in fact, the very idea of sitting and *listening* to programs instead of watching them probably sounds strange. But radio was just as powerful a medium as TV, and to many it was even better.

Radio reached its peak as a form of entertainment in the 1930s and '40s. Although the invention itself dates back to the turn of the century, it wasn't until the 1920s that the industry started to grow as home sets became affordable. Many people built their own from mail-order kits and ready-made parts; for them it was the novelty of being able to receive signals from far-off stations that made it so exciting. (Remember, even the telephone was relatively new and long-distance calls were rare in most households.) For others, it was the idea of bringing an effort-free "music box" into the home, which is how RCA's David Sarnoff promoted his radio set in 1922. At $75 it wasn't cheap, but the public responded to the tune of $11 million in sales that year alone. Two years later the figure swelled to $50 million.

Fanny Brice, master of dialect comedy, kept impish "Baby Snooks" in network hot water from 1936 to '51.

Music was the mainstay of programming, but it was the novelty of "firsts" that helped establish the broadcasting industry: Pittsburgh's KDKA went on the air in 1920 with Presidential-election returns (Warren Harding won); Newark's WJZ followed a year later with the 1921 World Series between the Giants and the Yankees (the Yankees lost). The radio set soon became a fixture in American homes, providing free music, news and novelties for hours each day. It also became an important new advertising medium, which helped foot the bill. As the number of listeners grew, so did the number of stations and the challenge of filling air time in an interesting manner. It seemed only natural to broadcast plays, which soon evolved into the continuing stories written especially for radio.

*Amos 'n' Andy* has long been credited with helping to establish the idea of regular listenership. Freeman Gosden and Charles Correll (p. 76), both white, created their endearing Harlem characters, originally named Sam and Henry, in 1926 and made their network debut on NBC in 1929. It was said that one could walk down the street of an average town on a balmy evening and hear the entire broadcast as it spilled out

*Film historian for TV's* Entertainment Tonight, *Leonard Maltin wrote on Charlie Chaplin in July 1986. He's working on a book of radio history.*

Radio's royalty: Charlie and Edgar, Gracie and George, Mary and Jack.

Debonair film star Ronald Colman shunned "crude" radio until the 1940s.

Freeman Gosden's Amos (left), Charles Correll's Andy: a hit.

of successive living-room windows. Movie-theater managers, tired of customers not turning up for early shows, piped the 7 o'clock program through their speaker systems so no one would miss an installment.

As radio took root, it blossomed into infinite variety. Daytimes were filled with conversational programs, live music, game shows and (most of all) soap operas with names like *The Romance of Helen Trent, Our Gal Sunday* and *Backstage Wife* ("The story of Mary Noble and what it means to be the wife of a famous Broadway star—matinee idol of a million other women"). Naive, perhaps, but they weren't terribly different from the soaps people follow on TV today.

Late afternoons and early evenings were largely given to children's programs—adventure ruled. *Superman, Tom Mix, Sergeant Preston of the Yukon, Captain Midnight* and *Jack Armstrong, the All-American Boy* (a role model if there ever was one) took youngsters into a world of action and intrigue where they pictured themselves as part of the derring-do. Participation, not just listening, was enhanced with the advent of premiums. Kids were urged to send in box tops (and often "ten cents in coin") to obtain exclusive items. With Captain Midnight's decoder they shared the fun when their radio hero or his trusty announcer sent a secret message that could be deciphered only by using the alphabetical code printed on the toy. (As humorist Jean Shepherd recalled in his autobiographical movie *A Christmas Story*, a lot of furious scribbling would often produce an anticlimactic message like "Be sure to drink Ovaltine.") All sorts of ingenious badges, compartment rings, booklets and cut-out toys were offered by *Little Orphan Annie, Sky King, Dick Tracy* and *Jack Armstrong*, whose Hike-o-Meter (a simple pedometer) is said to have yielded six million requests.

In the evening there was the broadest possible range of entertainment, from the cornpone humor of *Lum 'n' Abner* (they got involved in small-town intrigues from their base at the Jot 'Em Down Store in Pine Ridge, Arkansas) to the NBC Symphony with Maestro Arturo Toscanini; from the glamour and prestige of *Lux Radio Theatre*, where the biggest movie stars in Hollywood appeared in adaptations of famous films, to the down-to-earth truisms of *One Man's Family*, the evening soap created and written by Carlton E. Morse, that ran from 1932 to 1959 and led many listeners to think of the Barbour clan as their second family. The prolific Morse also created another long-running hit, *I Love a Mystery*, a wildly fanciful yarn starring three adventurers—Jack, Doc and Reggie—whose globetrotting escapades might have left Indiana Jones dizzy.

There were variety and comedy shows with great stars like Jack Benny, Fred Allen, Bing Crosby, Kate Smith, Fanny Brice (p. 75) and Eddie Cantor; dramatic anthologies like *Suspense, First Nighter, Screen Guild Theatre*; and all the continuing series: *Gang Busters, Mr. District Attorney, Duffy's Tavern, Dr. Christian.*

Every broadcast, no matter how modest, required a large number of talented people to get it on the air, from writers and directors to sound engineers and musicians (most shows were accompanied by live music: a solo organ on daytime soaps and a full orchestra on evening programs, often with themes and between-scenes bridges written for that broadcast). The unsung heroes were the sound-effects men, those wizards who could produce any sound—from a teacup being placed in its saucer to a raging fire—"live" and on cue (in the early days, few effects were prerecorded). They experimented to make it just right. A horse's trot might be the clip-clop of hollowed coconut-shell halves on a flat surface (on bags of flour or cement if the horses were trotting through snow) or the pounding of fists against

Don Ameche (in 1930) calls radio "greatest medium of all."

Early fitness show (c. 1927): comic Gladys Harvey told how to shape up.

Bette Davis heard her own screams in nightmare: Elliott Reid was killer.

the soundman's chest. They gave a realistic underpinning so listeners would have no cause to doubt that everything being portrayed was truly happening.

For actors, radio was a godsend. It offered employment for those lucky enough to master radio technique (different from stage or screen skills, since the only tool available to the performer was a voice). What's more, it eliminated the stereotyping that plagued many acting careers. You didn't have to *look* like a leading man or leading lady—just *sound* like one. (And you didn't have to look your best unless you were in front of an audience. Veterans say that one of the nicest things was not having to dress up or even shave.)

Radio actors made a good living but there were inequities. On *Hollywood Hotel* in the mid-'30s, the late Frank Nelson made $25 a week, while the big-name guest star got $5,000. Unlike some of the daily shows, which went on with just a few brief run-throughs, the more prestigious evening programs demanded considerable rehearsal time for which the actors received no additional pay. One day Nelson went to his female counterpart on *Hollywood Hotel*, Lurene Tuttle, and announced his intention to get them both a raise—to $35. The producer played tough but finally capitulated. (Is it any wonder that Nelson was one of the founders of AFRA, the radio artists' union?)

Actors who made the most money were those with versatile voices who dashed from one show to another, doing as many as five a day. There was no conflict in having the same person play a juvenile on one, a crotchety grandfather on the next and a German soldier on another. Old-timers love to tell stories about finishing an NBC show at 11:59, racing for an elevator, zipping over to CBS and just making it for another show where they went on the air at 12:03. The top story no doubt belongs to Orson Welles, who once hired an ambulance to whisk him from one job to another without having to wait for red lights.

Welles paid his dues as a journeyman radio actor in New York before achieving fame on the stage and the right to produce and host his own dramatic series, *The Mercury Theatre on the Air*, which adapted famous literary works. The *Mercury* broadcast on Sunday evenings was a forum for Welles and his repertory company, many of whom, like Joseph Cotten, Agnes Moorehead (p. 70), Everett Sloane and Ray Collins, went with him to Hollywood when he made *Citizen Kane*. On the night before Halloween in 1938, Welles and coproducer John Houseman presented a vivid adaptation of H. G. Wells' *The War of the Worlds* which became the most famous radio show in history. The depiction of growing panic as Martians "invaded" New Jersey was so realistic that thousands of people started a real-life panic. Welles' so-called hoax illustrated the power of radio. Shortly before his death he recalled: "The reason that radio was often very good, and better than television is, is because there were many sustaining shows—shows without sponsors, paid for by the networks and given prime time. There is no such equivalent in television."

His *Mercury Theatre* was such a show, as were the innovative plays of Arch Oboler and Norman Corwin, who says: "Three out of four times, I figured were I sponsored, the sponsor would have said, 'Gee, are they going to *get* this in Topeka?' No commercial program would have given me the kind of freedom I had as a sustaining show on CBS."

Many of those old programs are still enormously stimulating and entertaining, and this is what brings new members into the SPERDVAC fold and new fans to the medium. My wife got us started because of her undying love for Ronald Colman (opposite). A friend

In a re-creation of *This Is Your FBI*, veteran player Jimmy Lydon uses classic 77-A mike at the convention.

asked if she'd ever heard some of the shows he'd done with Jack Benny and when she said no, he offered to make us copies. In the old days, families gathered around the Atwater Kent to listen in. Our favorite place is the car, with tapes—there is no pleasanter way to speed travel time along.

Portability is a boon. So is the continuing broadcast of vintage shows, for which much of the credit goes to Charles Michelson, who's been working to keep radio alive for nearly three decades. He acquired the syndication rights to such greats as *The Lone Ranger* and *The Green Hornet* years ago. His foresight has paid off because major stations are now carrying them and in many cases beating all competition in their time slots. For the recent SPERDVAC convention dinner he put Lone Ranger silver bullets at every place setting.

During that convention there were two authentic radio-show re-creations. In one, a young New Yorker named Anthony Tollin produced and directed *The Shadow* with John Archer in the role of Lamont Cranston, which he played in the '40s (other Cranstons included Orson Welles and Bret Morrison), Lesley Woods reprising Margo Lane, Dwight Weist in his old part as Commissioner Weston, Les Tremayne (better remembered as Mr. First Nighter) as villainous Dr. Nightmare, and André Baruch announcing, just as he did way back when. Music cues were provided on tape by organist Rosa Rio, who originally played live on the air, and sound effects were by CBS radio veteran Ray Erlenborn (opposite). Ron Streicher, who runs an audio-production company, volunteered as engineer, using a high-tech mixing board that would have looked like a science-fiction tool back in the '40s. Yet the microphones that dotted the stage were the same massive "44-Bs" and "77-As" that were standard equipment in radio's golden age. Most old-timers agree that nothing comes near them for reproducing the human voice.

*From sinister laugh to seventh heaven*

At the first notes of the creepy organ, Archer stepped to the mike and intoned the most famous phrase in radio drama, "Who knows . . . what evil . . . *lurks* . . . in the hearts of men? The Shadow knows!" followed by the sinister laugh that was the show's trademark. For the next half-hour, nearly 200 people sat spellbound by the sheer joy of watching a precious art form brought back to life. The actors, none young, seemed to shed the years as they sank into their roles. When dogs were to bark in the distance, soundman Erlenborn imitated them himself. When a man was shot, he flung his body onto the sound-effects table. Some effects, like the noise of a car, were prerecorded; others were live, with props. Doorbells, telephones, the jingle

of keys—all came right on cue as did the Blue Coal commercial, read by one of radio's most famous voices, André Baruch. (The pitch was to encourage war veterans to work in the Blue Coal mines, "a good steady job at good pay, with $75 vacation pay accrued in the first year.") By the time Archer closed the show with the Shadow's reminder that the "weed of crime bears bitter fruit," the audience was in seventh heaven.

As I watched these remarkable performers at work, I felt a bit wistful, even sad, mourning the loss of a medium that brought with it such energy and excitement. That night, I sat with Dwight Weist at dinner. He's still active, both as announcer and actor and coowner of a school for broadcasting in New York. But the kick of performing in *The Shadow* that day had been something out of the ordinary and it filled his thoughts. "You know," he said to himself as much as to me, "we were damn good!"

At a panel the next day, Bobb Lynes introduced all the participants but one. Instead, someone flipped a switch and piped the *William Tell* Overture through the room. On cue, a man leaned toward a microphone and intoned the words, "A fiery horse with the speed of light, a cloud of dust and a hearty hi-ho *Silver*!" Without a script, announcer Fred Foy recited the fabled opening of *The Lone Ranger* just as he had done for so many years. A charge surged through the room, a direct line from Foy's voice to every pair of ears and every imagination, casting a spell as if to say *right now*, just for a moment, those "thrilling days of yesteryear" are still here with us. The music swelled and Foy cried, "The Lone Ranger rides again!"

Sound-effects man Ray Erlenborn, who worked at CBS radio and TV for 40 years, supplies a cat yowl during a reprise of *The Shadow* for SPERDVAC. In his repertoire: phones, keys, the thump of bodies.

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# Have Sails, But They Back Into Yours.

Adding to the luster of Paris, remodeled station, now a museum, sits on the Left Bank of the Seine.

*By Barnaby Conrad III*

# From Paris, with love: a new palace for art now shines on the Seine

Its newly sandblasted classical stone facade looks across the river toward the Louvre, seen at the far left.

*The beautiful Gare d'Orsay, once an unlikely train terminal, spent decades decaying; now it has reemerged as a splendid museum*

On March 22, 1900, the painter Edouard Detaille returned from looking at the nearly completed Gare d'Orsay designed by Victor Laloux and wrote in his journal: "The station is superb and gives the impression of a Beaux-Arts palace. The Palace of Beaux-Arts resembles a railroad station. I suggest to Laloux to exchange them if there is still time." The facetious remark went unheeded, and on Bastille Day that year the new Paris train station opened to fanfare for the

*Color photographs by Dmitri Kessel*

Photograph, circa 1910, shows great chamber of the terminal from which were dispatched as many as 200 trains daily to the southwest. By 1939 traffic had decreased and station was in sharp decline.

1900 World's Fair. For almost half a century it bustled with trains, only to be abandoned and nearly subjected to a fate as tragic as New York's Penn Station.

Eighty-six years after its initial construction, Detaille's wish for a Beaux-Arts palace came true when the renovated train station opened on December 9, 1986, as the Musée d'Orsay, a museum dedicated to 19th-century art. And as luck would have it, today a painting by Detaille himself hangs in the gallery.

This museum is one of the most unusual in the world. "No other museum has devoted itself entirely to the 19th century with permanent exhibitions," says Michel Laclotte, head curator of painting at the Louvre and a moving force behind the creation of the Musée d'Orsay.

The new museum boasts all the glorious Impressionist paintings formerly housed in the Jeu de Paume; all the Post-Impressionist and Nabis works from the Palais de Tokyo (among them 400 works by Odilon Redon); and selected works formerly in the Louvre collection, including paintings and sculptures by artists born after 1810 like Courbet and Millet, with certain late paintings by Delacroix, Corot and Ingres and the Barbizon School. The immense collection also holds hundreds of objets d'art, furniture, architectural models, photographs, film, posters and media objects from 1848 to 1914.

Dominating the Left Bank opposite the Tuileries, the newly sandblasted limestone facade of the Musée d'Orsay makes it an impressive sight. One might not guess that the museum bears 12,000 tons of metal structure, almost twice that of the Eiffel Tower. The 56,416 square feet devoted to exhibitions make an immense space, half the size of the Louvre's. (The total cost of renovation and adaptation is estimated at 1,360 million francs, about $204 million at today's rate of exchange.) The nave alone, the main concourse of the building, stands 453 feet long, 131 feet wide and 105 feet high.

In 1897 the Paris-Orléans rail company bought the site, which held the ruins of the former Palais d'Orsay, and secured the right to extend its rail line 2.26 miles

*An American writer living in Paris, Barnaby Conrad III wrote about traveling on the Orient Express in* SMITHSONIAN, *December 1983.*

Now the spectacular nave of museum, the huge hall, 453 feet long by 131 wide and 105 high, is as imposing in its way as before. Sculpture at left is by François Rude; at right, by Antoine-Louis Barye.

from the inconvenient Gare d'Austerlitz to the Quai d'Orsay, the center of Paris. The company consulted three architects, among them Victor Laloux who had just built the rail station at Tours and rebuilt the Hôtel de Ville. A few critics expressed displeasure at the idea of having a bustling train station quite that close to the Louvre. Laloux was well aware of this and if the station looked like a Beaux-Arts palace, as Detaille suggested, it wasn't an accident. Laloux's design deliberately concealed the metal framework with a stately classical facade of cut stone.

Laloux's proposal was accepted on April 21, 1898. The completion deadline was set for July 14, 1900, soon after the opening day of the World's Fair in Paris. Laloux set up a time schedule for round-the-clock work: 300 men labored by day with another 80 on the night shift.

When it was finished, hordes of visitors admired the Gare d'Orsay's sleek lines as they disembarked to visit the World's Fair grounds. As the end of the Paris-Orléans company's line to the southwest, up to 200 trains a day used the station, many of them express and nonstop. But, too soon, 20th-century progress cast Orsay in shadow. By 1939 its use had decreased drastically and it handled only local traffic.

During World War II the station was used for shipping packages to war prisoners, and after the Liberation as a reception center for released prisoners. But for the most part it stood empty. Orson Welles filmed Kafka's *The Trial* here in 1962. Bernardo Bertolucci shot part of *The Conformist* in the station hotel in 1970. Jean-Louis Barrault's theater company and even the famous Paris art-auction house, Hôtel Drouot, used the abandoned space until 1980. General de Gaulle held his famous press conference announcing his return to power on May 19, 1958, in the ballroom of the grand old station hotel (which remained in business until 1973). This last chapter of a golden age ended when the French national railway, the SNCF, turned the Gare d'Orsay over to the state in 1978.

That the future museum remained intact this long is in itself a miracle. France under de Gaulle was undergoing a wrenching philosophical upheaval in order to enter the 20th century. Under President Georges Pompidou in the '70s, the beautiful old Baltard marketplace at Les Halles was destroyed to make way for

*Paris' new art palace on the Seine*

Manet masterpiece, *Luncheon on the Grass*, a scandal when unveiled, dominates stony, impressive gallery.

the grandly mediocre Forum des Halles, a vast chrome-and-glass shopping complex (which is still unfinished). A colorful old quarter was sacrificed for the brazen Pompidou Center (SMITHSONIAN, August 1977). Parisians grimaced as modern skyscrapers like the Tour de Montparnasse rose ominously on the Paris skyline, taking a piece of the past with it.

Now ambitious eyes turned to the prime land under the Gare d'Orsay, with its footage on the Seine. As early as 1961, the SNCF had talked of demolishing the station to build a modern convention center-hotel. They were serious enough to raise financing and to hold a competition. Thirteen projects were considered, with Le Corbusier himself, *moderniste suprême*, proposing a massive cement structure somewhat resembling a tipped-up waffle iron. When that didn't go through, the mayor of the 7th Arrondissement of Paris, Edouard Frédéric-Dupont, lobbied to use it as a shuttle-bus terminal for Orly Airport.

The station would have been doomed except for one man: Jacques Duhamel, Minister of Culture (1971-73) under President Pompidou. Recognizing the Gare d'Orsay as an integral part of France's heritage, Duhamel reminded Pompidou of the public outrage expressed over Les Halles. The President wisely let Duhamel give the station landmark status.

*The choice was cheese or Cézanne*

But it still wasn't definite what would go in there. Michel Laclotte, already a young curator at the Louvre, remembers meeting with Duhamel over lunch. "He had been looking at various solutions to save it. One of them was letting it be used by Maison des Provinces Françaises, an organization which promotes the various regional products and crafts of France. At that moment the waiter brought the cheese tray and I said to Duhamel: 'Monsieur le Ministre, the choice is between Reblochon and Cézanne.' " (Reblochon is a cheese.) "Duhamel laughed and I knew then he'd set his mind on a fine arts museum."

But Duhamel, suffering from bad health, had to resign. Fortunately, he passed the torch to Jean Chatelain, then head of the Museums of France. Chatelain had the idea of taking all the Impressionist paintings from the Jeu de Paume and putting them in the station's hotel section, and turning the glass nave into a vast garden and parking lot. Pompidou liked the idea and is said to have told Chatelain in one of their last conversations: "*D'accord, Chatelain, Orsay—c'est pour vous*" (Okay, it is yours).

But as Chatelain continued discussions with Michel Laclotte, a larger idea emerged. Why not include other painters from the 19th century like realists and academics, and perhaps sculpture and a little architec-

Columns, mirrors, murals, crystal chandeliers, parquet floor made up the grand ballroom of the deluxe hotel contained in the terminal; it is now a splendid place for showing large-scale works of art.

ture, too? By the time President Valéry Giscard d'Estaing officially set the museum conversion in motion in 1977, it was agreed that the museum would include painters from the second half of the 19th century, with some earlier works by Delacroix, Ingres and Courbet, richly supported by the other arts of the time.

Every president since de Gaulle has generously left the French people with a museum as a personal monument: for Pompidou, the man with the popular touch, it was the modern art museum that bears his name at Beaubourg; for the conservative, stiffly elegant Valéry Giscard d'Estaing, it was the resurrection of the Gare d'Orsay. But work had only just begun when Giscard lost the 1981 election to Socialist François Mitterrand. In May that year Mitterrand met with the Orsay team. "In theory, Mitterrand could have stopped the project completely, or started something on his own," said Michel Laclotte. "But after reviewing it, he gave us the go-ahead, making just a few changes." At the time, an ill-founded rumor had it that Mitterrand was going to turn Orsay into a museum glorifying Socialism, but nothing of the sort happened. Mitterrand asked only that the museum include exhibits showing a historical panorama: the urban changes, social movements, scientific innovations and the rise of the working class in the politics of the century. He named Madeleine Rebérioux, a historian specializing in the 19th-century workers' movement, to supervise the visual documentation. What no one knew at the time was that Mitterrand, a wily politician with a cultivated esthetic sense, was just months away from unveiling his Grand Louvre project in September of that year. The plan called for a vast underground expansion and a total reorganization of the overcrowded fine arts palace.

The question then became how to turn the 19th-century white elephant of a station into a modern museum. In 1979, ACT Architecture (three associated architects—Pierre Colboc, Renaud Bardon and Jean-Paul Philippon) was selected to do the exterior and structural renovation, while Gae Aulenti, the noted Italian architectural designer, got the bid for the interior. After Mitterrand's visit, construction got under way immediately.

Aulenti, a sturdy, deep-voiced woman, seems to be

The intimate main-floor gallery is devoted to works by notable pre-Impressionist French painters.

Paul Cabet's *Sortie du Bain* looks inquiringly at the great clock at one end of the imposing nave.

the best combination of individualist and team player. "People, particularly in France, like to think of architecture as some kind of isolated intellectual exercise. It's not; you're always working with the concrete," she says ("concrete" in the sense of down-to-earth problems rather than stone aggregate). And to get at the heart of these concrete needs, architecture for her is always a partnership.

In this project, Aulenti's partners were not only the museum curators and the art to be hung, but the ghost of architect Victor Laloux. "Laloux's station was really a terrain to work within and we had to respect it. We worked with Laloux—a rapport of love but also opposition. The nave is monumental and we had to diminish that monumentality to make it work." In the vast glass nave Aulenti inserted what amounts to an entire museum—a structure with a modern touch that is unmistakably hers, yet which doesn't seem a self-aggrandizing statement.

Sound and light were Aulenti's main considerations in her design. Natural light falls through the glass panels of the nave, which is fine for sculpture, but for the paintings it had to be mixed with artificial light. "Most important, we needed indirect light. So we created a *brise soleil* (sun shutter) system and skylights in some of the rooms. The walls are designed to reflect light and to absorb sound." Museums should be quiet places, but popular museums are usually noisy. So Aulenti created a unique system of wall apertures that absorb sound and smother it. "Each hole is attached to a bottle that swallows sound, a different size bottle for a different sound."

The visitor enters at the glass canopy on the rue de Bellechasse adjacent to the Palais de la Légion d'Honneur and is immediately bowled over by the eight-story-high nave. In the main courtyard: sculpture by Rude, a great animal by Barye and a marble by Pradier. At the end of the imposing gallery stands Carpeaux's *Danse.*

*Cultural coexistence on display*

"Unlike the Renaissance," says Michel Laclotte, "the 19th century was a potpourri of styles, ideologies and esthetic movements. For example, there is more rapport between an architect like Palladio and a painter like Veronese than there is between Garnier and Cézanne. So in the exhibits we're not trying to artificially emphasize similarities between the different disciplines—we just want to show their coexistence."

The museum has wisely avoided reducing art to the role of sociological artifacts of a 19th-century civilization. "We've kept the paintings on their own—and you won't see a painting by Cézanne from 1870 accompanied by a historical note telling you it was painted the

# *"Ok... But why Tandy Computers?"*

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same year Napoleon III was deposed," says Laclotte.

"Similarly," he adds, "in the Decorative Arts sections, no attempt has been made to re-create period rooms—we don't mix Post-Impressionist paintings with Art Nouveau furniture for example. They do that well enough at the Musée des Arts Décoratifs across the Seine." Orsay has dedicated three rooms to the Art Nouveau movement, featuring works by Horta and Van de Velde in Belgium, Gallé and Majorelle of the Nancy School, along with Paris favorite Hector Guimard, designer of the Métro entrances. Among the artifacts you'll even find Thonet's bentwood cradles.

*Rounding up the treasures*

The treasures of the Musée d'Orsay chronologically link the art of the Louvre with the modern collections at Beaubourg and the Musée d'Art Moderne. The richness of the collection is in part due to the radical expansion and reorganization of the Grand Louvre project. "The toughest decision was moving all the Courbets out of the Louvre," says Laclotte. "He's a grand-scale painter in the tradition of Veronese and David. His paintings hung well in the Louvre. But he is a realist, the inspiration for many painters like Manet, so we took him to Orsay."

The Impressionist paintings formerly in the Jeu de Paume are the heart and soul of the Musée d'Orsay. While the Jeu de Paume offered a charming, intimate encounter with this school, seeing them in the Musée d'Orsay is far more enlightening since it puts the Impressionists in the context of the art that came before, during and after them. There are paintings by the romantics like Delacroix ranging up to the eclectics and symbolists like Gérôme, Puvis de Chavannes and Gustave Moreau. In the rooms to the left of Aulenti's courtyard hang realists like Daumier, Corot, Millet and the Barbizon landscapists. They are followed by Manet's masterpiece *Olympia* and the pre-1870 work of Monet, Bazille and Renoir. The visitor will have a chance to see naturalist painters like Bastien-Lepage rubbing shoulders with symbolists Burne-Jones and Delville. Not all the art is from France: about three dozen Americans like John Singer Sargent, Winslow Homer and James McNeill Whistler also get wall space—with an Australian painter thrown in for good measure. The terraces above the courtyard display the sculpture of Rodin, Maillol and Bourdelle, while rooms along the Seine display popular imagery, posters and decoration from the Third Republic. Also shown here are the academic sculptors from 1870-1914.

Naturally, says Laclotte, visitors will make mental connections between the various arts and set them in their historic context if they visit all the sections of the museum. And the 19th century was filled with many ironies that have only become apparent with revisionism. For example, no art has been so admired in its time by the public—and been so quickly forgotten—as 19th-century academic painting by artists like William Bouguereau and Sir Lawrence Alma-Tadema. But in their heyday, artists like Gleyre, Couture and Gérôme once enjoyed the lion's share of honors from the state, as well as rich commissions from wealthy bourgeois clients. The academic or *pompier* painters looked to the past while the Impressionists painted scenes of modern life like bustling train stations and questionable women sipping absinthe at bohemian cafés in Montmartre. Not surprisingly, the two camps held each other in mutual disdain. The fact that the academic Couture taught the rebellious Manet makes a comparison of their paintings all the more interesting for the visitor tracing the esthetics and even social morality of this century.

The Musée d'Orsay might be looked on as a hall of fame for all the painters who exhibited (or tried to exhibit) at that great arbiter of taste, the Salon. In its

Jean-Baptiste Carpeaux's enthusiastic *La Danse* decorated facade of Paris Opéra from 1869 to 1964.

*Overleaf:* A Musée d'Orsay sampler

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*Chasse aux lions* is a typically dramatic work by the master of romanticism, Eugène Delacroix.

Jean-Dominique Ingres, supreme neo-classicist of France, painted *Vierge à l'Hostie* in 1854.

Mid-century academic painter William Adolphe Bouguereau did *La Naissance de Vénus* in 1879.

Naturalist Gustave Courbet jolted French sensibility at the outset, painted *L'Atelier du peintre* in 1855.

*Baigneurs* is by Paul Cézanne, one of the greats of all time, but a failure as a painter in his own lifetime.

Smash hit from opening, museum draws crowds to its wonders; here they queue up on rue de Bellechasse.

heyday, the Salon in Paris drew mobs of the bourgeoisie who came to praise or disparage. For them, art was not an intellectual amusement or decorative puzzle; it was a moral arena. Woe to those artists who strayed from biblical scenes, military victories, mothers caring for dewy-eyed children, or gods drinking nectar. During the Salon of 1853, an outraged Napoleon III is reputed to have struck Courbet's "vulgar and trivial" *Bathers* with his riding crop. As late as 1893 when the painter-collector Caillebotte offered the state his collection of Impressionist works, the academic Gérôme reportedly declared, "For the government to accept such filth would be a sign of great moral decline."

A turning point in art history came in 1874 when the Impressionists Monet, Renoir, Pissarro, Degas, Cézanne and Morisot mounted their maverick exhibition after years of rejection by the Salon committee. Their fresh scenes from contemporary life—railroad stations, picnics in poppy fields, and boating parties—were sometimes greeted with full-bellied laughter by the largely ignorant public.

As romantic a vision as we maintain of that era today, it was a hard life being a misunderstood artist in the 19th century. Van Gogh, who sold only one painting in his lifetime, wrote in an 1888 letter to his brother Théo: "I also told this to Gauguin . . . that if one painted like Bouguereau, that one could hope to earn money, but that the public will never change and they love only sweet things." Long after the battle of the brushes has ended, today we find Bouguereau and Van Gogh (SMITHSONIAN, October 1984) hanging within a stone's throw of each other.

The late 19th century was a time of sweeping change and the museum aptly shows this with architectural plans, documents and models of Baron Georges Eugène Haussmann's urbanism. When Haussmann came to power in 1853, Paris was largely as it had been for 300 years—a rabbit warren of streets and alleyways. By 1870, Haussmann had changed it vastly. As Prefect of the Seine under Napoleon III, he cut wide boulevards through old neighborhoods. He breathed fresh air into the claustrophobic density of Paris, but in doing so he killed off the Paris of Diderot, Voltaire and Balzac. As the Musée d'Orsay exhibition explains, the avenues were created partly for civilian circulation but also to allow Napoleon's soldiers to march quickly to put down uprisings.

A special room has been devoted to the graphic arts of the period, while the museum's rich holdings of documentary and early fine arts photography allow it to cover almost every aspect of this brilliant era. In this sense, the museum is not just an esthetic showplace, but a chronicler of the century. The first films of Lumière and Méliès will be projected to illustrate the evolution of the film industry. With a smorgasbord of the 19th century under one roof, the museum is going to be a boon to scholars. "We have established a memory bank on video rather than microfilm for both scholars and the general public. Not even the Getty Museum has that yet," says Laclotte.

The 19th century was a great century for a French passion: food. The museum restaurant, installed in the former dining room of the hotel, is an ornately gilded period piece with a ceiling painted with deities by Gabriel Ferrier, winner of the 1872 Prix de Rome. It is undoubtedly the most beautiful museum restaurant in the world. All signs indicate that it will be a culinary treat, as well. Two simpler cafés, a bookstore and a 380-seat auditorium round things out.

Walking through the rooms of great art, one forgets for a moment that this was once a condemned train station. Museums have been installed in other historic monuments—castles, palaces, churches and even former abbeys. But the Musée d'Orsay is the first museum of this importance to occupy a public building, and specifically a train station. Is there an irony in the concept: a place that once clamored with shouting porters and people waving good-bye, now preserved for quiet contemplation of a time past? No one seems to mind. It certainly offers hope for such a wonderful American building as Grand Central Station. Who knows? In another hundred years, we may end up saving Eero Saarinen's TWA air terminal at JFK by turning it into a museum of 20th-century art. Painter Edouard Detaille—or a space-age counterpart—would no doubt be pleased.

Louvre's Pavillon de Flore as seen through eyepiece of Orsay's clock, a witness to miracles of time and art.

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Summer downpour drops as much as an inch of rain in an hour on a patch of Sonoran Desert in Arizona.

Dormant species will spring to life in a burst of activity, a rush to feed and reproduce while they can.

*By Dennis Cornejo*

# For the desert toad, rain starts a race to metamorphosis

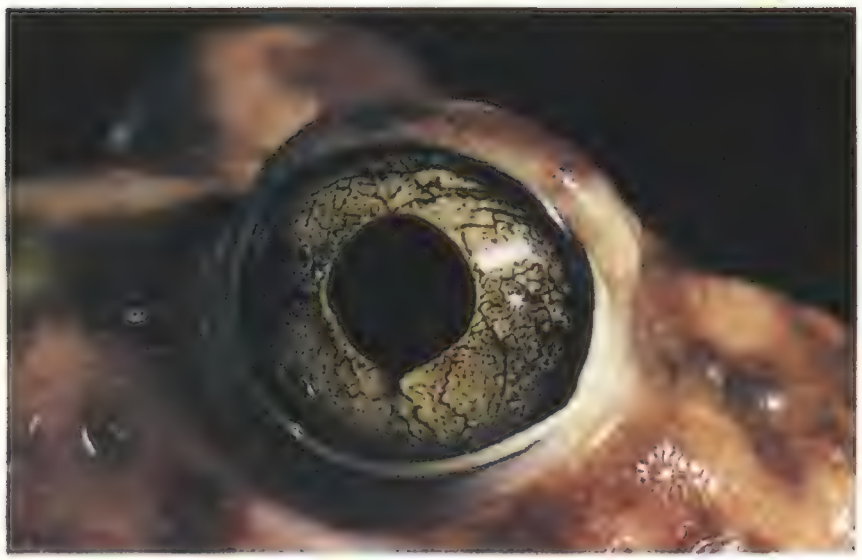
*Hatched in ponds that last for just days, young spadefoots compete in a tadpole-eat-tadpole rush to adulthood before their world dries up*

It is late June in the Sonoran Desert. There has been little rain since March. Daytime temperatures pass 100 degrees F; by midafternoon the bare ground reaches 150. The prevailing winds have changed since spring and rumbling dry storms herald the arrival of moist air from the Gulf of Mexico and the Gulf of California. Local people speak of the inevitable summer monsoon, which will bring relief from the spring drought. The typically scattered small thunderstorms (usually about three miles in diameter) that sweep across the desert will become an almost daily event once the air is hot enough. The moist air will heat and rise during the day; while it rises, it expands and cools and can no longer hold all of its moisture. If the air rises fast and high enough, thunderstorms will result by midafternoon, yielding up to an inch of rain in an hour.

Away from the city, away from the hum of evaporative coolers and swimming-pool pumps and the clockwork sprinklers on the lush green golf courses, the desert waits. Each living thing waits for the rains in its own way. Some tolerate the heat and aridity, such as the deep-rooted mesquite. Creatures that can hide

*Photographs by Thomas A. Wiewandt*

A Couch spadefoot toad, which has survived under the ground for ten months, now peers from its burrow. Though it has not eaten in all that time, its first order of business is to find a mate in the pond.



from the midday sun will be active mostly at night, like the patient long-eared jackrabbit in a bit of shade and the family of collared peccaries taking a drink from the last tepid pool of muddy water. Other organisms, such as dormant seeds which will begin to grow during the coming rains, wait out the spring drought. But perhaps the most amazing adaptations to the desert are found in spadefoot toads.

To escape the harsh aridity of the desert, these toads live as deep as three feet underground in a dormant state. A semipermeable membrane outside their skin allows them to absorb moisture but prevents any from leaving their bodies. A high tolerance for urea lets them retain bodily fluids. The annual summer monsoon briefly creates a warm and moist, almost tropical, environment. Only within the limits of this benign season can the toads pursue the normal goals of all animals: feeding, finding a mate and reproducing. The summer wet season is short, three months at most, and in any given location is unpredictable. Consequently, the adult toads have very large stomachs: eating half of its body weight will provide a spadefoot toad with enough energy and nutrients for an entire year and sometimes two. Timing is even more important for the tadpoles, whose habitats are short-lived rain pools. They must complete their life cycle before these "puddles" dry up. Not only is their development extremely rapid, but they can eat almost anything, including one another. Under certain conditions some of the tadpoles will even become oversize cannibals.

For the spadefoot toads, the new year begins with the summer rains. Each year they emerge to the low-pitched drumming of thunder and heavy raindrops on the desert floor. On the evening of the first flooding rain, tens of thousands of the toads dig themselves out of their ten-month tombs. The males quickly assemble at newly formed ponds. As their number increases, so does the volume of their mating chorus. Breeding must be accomplished in one night to give the tadpoles the best chance to complete metamorphosis before the pond dries up. Desert toad watchers call this evening of frenzied mating the "first nighter."

In the Tucson area, there are two species of spadefoot toads and even the inexperienced listener can tell the difference between their calls. The southern spadefoot (*Scaphiopus multiplicatus*) sounds like a thumbnail pulled across the teeth of a plastic comb. The other, the Couch spadefoot (*S. couchii*), sounds like a plaintive cry from a young sheep. The female

Pupil of a Couch's eye opens round and wide at night, but is a slit in daylight. Small, dark "spade" on back of rear foot enables toad to dig quickly.

A male Couch sings at the edge of a pond. Several hundred males will form chorus, audible miles away.

Holding a female toad in amplexus, a male fertilizes her myriad eggs as she deposits them in the water.

of each species can recognize the call of her own kind, which is unique, helping to insure that only individuals of the same species will attempt to couple.

When a male encounters a female of the same species, he will immediately climb onto her back. For spadefoot toads, the proper position is the male's chest on the female's back, called amplexus (above); the two are held together by the grasp of his powerful arms around her waist. He fertilizes the eggs as she lays them, as many as 4,000.

On paper, the mating procedure sounds fairly simple, if not uninteresting. Fortunately for toad watchers, this is not true in practice. Males always outnumber the females at a pond, so that the quickest, the loudest and most audacious males are likely to find a mate. Since males will pursue and attempt to mate with any object of the appropriate size and shape, any toad which moves at the pond will most likely be jumped on by every male in the immediate vicinity. A male is able to disengage himself from under this quivering mass of amorous bodies by a special vibration and a release call which indicates his sex and, hence, their error. Caught in a similar situation, a female can only wait until one male firmly embraces her in the proper position. Even after a couple achieve amplexus and move through the water to deposit eggs, they are subject to repeated attacks by other males. A normal-size male cannot easily be removed from a female, however.

While the antics of one species is entertaining, the two species together provide the best in late-night viewing. The Couch and southern toads often breed in the same ponds. Even though a female can recognize the call of a male of her own species and will move toward it, she cannot directly prevent any male of the wrong species from attempting to clasp her. She can, however, influence her fate.

The best signpost for the female is that the males of each species often call from different sites. The southern spadefoot prefers to call while floating, splayed-out, in the deepest part of the pond, while the Couch favors the edge of the pond. Even if the female is clasped by a male of the wrong species, all is not lost. Clayton J. May, of Pima Community College, and I have found that several things can happen to right the situation. The southern spadefoot is smaller than the Couch. If a southern female is clasped by a Couch male, the small size of the female is often enough to cause the male to release her. When a southern male attempts to mate with a Couch female, he can be knocked loose by a larger Couch male. As a final defense, the southern female can actually poison a Couch male. Toads are well known for their poisons, and the southern spadefoot is particularly toxic. The poisons are secreted from glands in the skin. Couch males mismatched with southern females quickly become weak and can even die if they do not let go.

Once the evening of mating is completed, the adults

*The author, a Tucson native who has been studying desert animals and their ecology for most of his 34 years, wrote a master's thesis on spadefoot toads.*

leave the pond and dig shallow burrows in the moist soil. Spadefoot toads are named for a horny growth on their hind feet (p. 100). By pushing down backward and repeatedly twisting the "spade," they can completely bury themselves in less than a minute. Every few nights as long as the rains last they will emerge and feed, but after the first nighter the adults will not return to the pond until the following year. In the morning, only the eggs remain.

These eggs hatch into tadpoles in 13 to 48 hours, depending on species and temperature. The young tadpoles are at first blind and helpless, subsisting on a little yolk in their gut. After about a day, their eyes and mouths are fully developed. In the days to follow, the tadpoles grow and soon develop limbs, of which only the rear ones are visible, since the front legs develop under the skin, near the gills. The rear limbs start as small buds; they grow slowly until they can be recognized as rear legs by their tiny knees and feet.

Several days before a tadpole leaves the water it stops eating. It is now that its entire digestive system changes. The small tadpole mouth becomes much wider and a large muscular tongue for catching insects develops. The intestines, which have been relatively long for digesting plant material, become much shorter in anticipation of a completely carnivorous diet. During this time of fasting, the tadpole lives off its tail, which shrivels as the tissue is drawn upon for nutrition. Finally, the tadpole must leave the water when the gills are reabsorbed and the front legs break through the outer skin. At this point the lungs, which have been slowly growing and functioning, must take over the task of supplying oxygen to the tissues of the new toadlet.

*These tadpoles eat everything in sight*

But we have got ahead of ourselves. How do the tadpoles feed? And what special adaptations do they have for living in the desert? Temporary ponds can produce a rich bacterial and algal broth. All the year's accumulated organic detritus that has washed into the ponds is now incubated at about 100 degrees F. But these rich nutrients must be filtered from the water. Spadefoot tadpoles can eat food items from the size of bacteria to the size of another tadpole. This ability to eat very small and large prey is rare, even in tadpoles, most of which are vegetarian grazers, whereas the spadefoot tadpoles are omnivores and can eat almost anything. Strong horny beaks driven by powerful jaw muscles allow them to tear bite-size chunks from drowned insects or even dead tadpoles. They also actively hunt the live prey which abounds in the temporary ponds. In the soil, at the bottom of dry ponds, are the tiny eggs of last year's tadpole shrimp, clam shrimp and

In a gelatinous mass draped over pond vegetation, some eggs are elongating only 12 hours after being laid.

Young tadpoles share the pond with fairy shrimp, which they will eat when they are older and bigger.

A southern spadefoot tadpole, much larger than its fellows, makes a meal of one of its own species.

In the fierce battle for survival in a temporary pond, a water beetle larva eats an unlucky tadpole.

fairy shrimp. With the coming of warm summer rains the eggs hatch and these aquatic crustaceans become nutritious prey.

It is not by coincidence that the spadefoot tadpoles are quality-engineered eating machines: the desert ponds are very short-lived and the tadpoles must grow and develop toward metamorphosis as quickly as possible. At least one inch of water per day is lost from the ponds by evaporation. Most ponds are from eight to 15 inches deep on the first night of mating, which gives them that many days of existence. To succeed in this habitat, the Couch spadefoot has a very brief larval life, as little as eight days from egg to metamorphosed toadlet. To my knowledge, this is the world record for an amphibian, but the cost of such rapid development is an extremely small and vulnerable toadlet—several of them can sit on a quarter.

*Slow growers can become "desert raisins"*

The southern spadefoot is a slower developer, taking at least 21 days to reach metamorphosis, at which point the southern toadlet is more than twice as large as a Couch, the reverse of the adult situation. There is a price for their slower development, however. Without additional rain the ponds will not last 21 days and all the tadpoles will die. Dead and drying tadpoles look remarkably like a pile of raisins. Ironically, even these "desert raisins" can contribute to the future by providing food for the next year's tadpoles.

Despite the marvelous achievements of natural selection, spadefoot toads do not thrive in the desert; rather, they continue to survive. The desert levies a heavy tax on any string of successes which increase the tadpole population. The more tadpoles in a pond, the slower many of them grow and develop, thus increasing the chances that some will never reach metamorphosis. One would expect that the tadpoles were starving, but this is not the case. When they are stressed by overcrowding, many of them, including the Couch spadefoot, are known to release chemicals which retard the growth and development of other tadpoles sharing the same water. For the southern spadefoot this can be particularly disastrous, since it has a longer larval period than the Couch. Only through a bizarre twist of evolution are the southern spadefoot tadpoles able to survive in the desert.

Larry Pomeroy, formerly of the University of California, Riverside, demonstrated that at high densities, in the presence of abundant fairy shrimp, a small number of southern spadefoot tadpoles develop differently from the rest. They grow much larger, lose their pigmentation and take on a ghostly pink color because the blood-rich gills are visible beneath their skin. Massive jaw muscles and short intestines de-

Ants crawl over tadpoles left high and dry by pond evaporation. Some will recover if the rains return.

The southern spadefoot is smaller than the Couch and lives its perilous cycle throughout the Southwest.

velop, the equipment for a new predaceous behavior. Rather than filter-feeding, scavenging and eating occasional animal prey, they actively hunt not only for crustaceans but also for smaller tadpoles.

In experiments, the predaceous tadpoles appeared to prefer eating Couch and other species to their own. In the absence of other prey, however, they became cannibalistic. Cannibalism among tadpoles is not unique to spadefoot tadpoles, but it is relatively rare. Formerly it was assumed that the predaceous tadpoles developed when the pond was drying up and almost out of water, because only through cannibalism could any tadpoles survive. Research by Pomeroy and myself, however, has determined that this is not the case. The oversize predator develops as a response to high population densities and abundant fairy shrimp, not later starvation.

*So many tadpoles, so little time*

The primary function of the predaceous tadpole seems to be the more efficient use of abundant large prey in the pond and the reduction of competition. Couch tadpoles are able to survive with the predaceous southern tadpoles because they develop faster and leave the pond sooner. In ponds in which both species occur, there is not always enough time for all the Couch tadpoles to be eaten by their cousins. The Couch can also escape by staying in the shallow water of the pond's edge, where their hungry fellows cannot reach them.

The exact pathways involved in producing and regulating the numbers of predaceous tadpoles are not known. Some biologists believe it is a matter of genetics, but I interpret the evidence as an environmental response. We know that tadpoles produce and release special chemicals when they are raised at high densities. While high density seems to be a prerequisite for the occurrence of these tadpoles, it is not sufficient by itself for their development. At least two more environmental cues must be involved.

The first is the availability of large prey. We know that in some frogs, exposure to thyroid extracts will cause tadpoles to develop large jaw muscles similar to those of the predaceous tadpoles. Perhaps when a spadefoot tadpole eats animals, rather than filter-feeding, its thyroid gland is stimulated to release a chemical message which causes it to become predatory. It is also possible that the first meals of the tadpole are the most important because predaceous tadpoles usually develop during the first five days of larval life.

The second cue is the population density of the tadpoles in the pond. In high-density situations, most tadpoles develop more slowly and are generally smaller. Only a few are larger and predatory. If the latter

are removed from the water, then several of the intermediate tadpoles will develop into replacements. I suspect that the first tadpoles which become predaceous release chemicals that inhibit further development by others. This restraint limits the number of predaceous tadpoles and minimizes the occurrence of cannibalism. As a species, the southern spadefoot is an incredibly efficient harvester of the limited resources in a temporary pond.

The dangers faced by spadefoot tadpoles are not limited to predation by their own kind and the risk of the pond's drying too soon. Several species of beetles, dragonflies and flies lay their eggs in newly formed ponds. While the larvae of soldier flies eat the tadpole eggs, the larvae of various beetles and dragonflies are able to catch and eat even the largest tadpoles (p. 103). Other species of horsefly larvae, which live in the mud around the pond, pull the newly metamorphosed toadlets under the mud and eat them.

If a tadpole is lucky enough to find food and escape various predators, and if it has enough time to reach metamorphosis while there is water in a pond, it must still face life in the desert, a life for which it seems poorly prepared. Even the southern spadefoot toadlet weighs less than one-tenth of an ounce and much of this is precious and easily-lost water. These tiny animals at first do not bury themselves in the ground like their parents. Instead, during their early days they take shelter where they can find it. They hide under fallen logs or branches, under rocks, in cracks in the mud, or even in cow hoofprints. The toadlets will not go back into the water only a few feet away.

By the end of their first week as toads they have completely absorbed their tails and are large and strong enough to dig their own burrows. Like their parents, they will feed throughout the summer on insects, although they will emerge from their burrows more frequently and go into hibernation later. Unlike their parents, the toadlets must triple or even quadruple in size to be able to survive underground until the next summer. If the toadlets are lucky, in two or three years they will participate in the frenzied activities of a first nighter, perhaps at the same pond in which their lives began.

Its wet-season goals accomplished, a Couch backs down into its burrow for the long, dry months ahead. It will dig down to the level where the soil remains at least slightly moist throughout the desert year.

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*By Martha McWilliam*

# One man's romance with fiber created the Textile Museum

*Once he had bought his first Oriental carpet, George Hewitt Myers never looked back in building the strong collection*

Good-natured model borrowed from local petting zoo wore Afghan apparel on Camel Dressing Day, 1980.

The Textile Museum in Washington, D.C., is a flying carpet for the imagination. Its 1,200 rugs and 11,000 textiles take your mind's eye over the vast reaches of time and space—from antiquity to the present, from nearly all geographic regions of the world with the exception of Western Europe. For six decades since its founding, the museum has led the way in its field with imaginative exhibitions, the first textile-conservation laboratory in this country and important scholarly publications. Yet, as soon as you come through the double doors of its fine Georgian-style mansion, you feel as though you have been invited by a great connoisseur to a rare viewing of his private collection.

Indeed, that's just the way the Textile Museum began. Before you enjoy his hospitality, meet your host, George Hewitt Myers, who lived here with his wife, mother and three daughters.

Born in 1875 in Cleveland, Ohio, Myers was the half brother of a cofounder of the Bristol-Myers pharmaceutical firm. While studying at Yale, he inherited half of his brother's interest in that company. After receiving a Master of Forestry degree in 1902, he worked for the U.S. Forest Service for several years before he turned to managing his fortune.

Myers was talented as a financier and creative as a philanthropist: he preferred to build gifts rather than merely dole them out. For example, drawing on his knowledge of forestry, he bought up wooded tracts in New England until he had accumulated about 8,000 acres, eventually donating nearly all of the land to his alma mater. The greatest gift he would build, however, would stem from his love of textiles.

Myers bought his first Oriental carpet while an undergraduate at Yale. He got it to furnish his dormitory room and, fascinated with it, began collecting others. In those early years, he got stung a few times. From a Boston furniture company he bought what he thought to be a fine 18th- or early 19th-century Gördes prayer rug, named after the town of Gördes in western Turkey. Some years later, he discovered that it wasn't a Gördes at all; it was a more recently (and loosely) woven look-alike from the hands of craftsmen in Bandirma, Turkey—a practice that thrived due to demand in Western markets. "The first sight of a tattered old Gördes threw the spotlight of authenticity upon two or three of my earliest purchases," Myers later wrote, adding that "an effective application of pumice-stone and elbow grease" had given the rug its antique look. While some collectors might have slipped an inferior carpet into a back-room closet, Myers exhibited it years later side by side with a genuine Gördes (p. 112).

In 1908 Myers married Louise Stoddard Chase and the couple settled in Washington, D.C. After the birth of the first of their three daughters, in 1909, he began to collect seriously. As early as 1915 he thought about

Detail of weaving in collection, from Spanish-Colonial Peru, may commemorate the death of Pope Paul V.

Myers' wife, Louise, and their daughters all died tragically within three years after his death in 1957.

A 1924 portrait of George Hewitt Myers reveals his direct and unpretentious nature, so valued by friends.

establishing a loan collection of rugs in the Smithsonian's new National Museum. But in those days, museums in the United States were still somewhat inexperienced in the handling of old textiles. Undaunted, he put together a show of 50 of his finest pieces, which opened at the Smithsonian in 1919. A letter still in the Textile Museum files admits that moths were found in the vicinity of the exhibit and asks if Myers would like his rugs vacuumed for safety.

Myers had a low-key sense of humor and an unpretentious manner. Former Smithsonian Secretary Alexander Wetmore liked to tell a story about him. One day as they walked past two rugs that were part of the Smithsonian's collection, Wetmore asked Myers what he thought of them. "Need cleaning," was all he said. "Damn it all, George," responded a frustrated Wetmore, "you said that last year and I had them cleaned!" "I always say that," quipped Myers.

By 1925, Myers owned the finest group of classical Caucasian carpets outside of Istanbul, as well as outstanding old carpets from Islamic Spain, Turkey, India and elsewhere in Asia. In all, there were 275 rugs and 60 related textiles. That year, he founded the Textile Museum. The Myers residence—two adjacent mansions on a tree-lined street overlooking the Federal City—housed the burgeoning collection.

For 32 years Myers guided the Textile Museum, creating programs as he saw the need for them. He underwrote scholarly publications about carpets in the collection (most notably, volumes on Spanish and Cairene rugs written by Ernest Kühnel and Louisa Bellinger). He also established, in 1952, the first conservation laboratory in this country devoted exclusively to antique textiles. And, finally, he carefully laid the groundwork for others to continue his efforts (in 1948, he prodded the museum's board with the words, "The present and quite natural attitude is to 'let George do it,' but George is getting old, paying taxes and is not so well off as he was!").

Myers died in 1957 at the age of 82, leaving to the Textile Museum one-fourth of his fortune. He had expected that his family would play a future role, but in an unbelievably tragic sequence, his daughters and wife (above) died during the following three years.

Today, the original Myers residence contains museum offices and a sales shop. It is little changed, a fine period piece of a gentleman's house on the eve of the First World War. The adjacent house, which the Myerses purchased in 1915 to add exhibition space, was extensively remodeled a few years ago.

Director Ursula Eland McCracken, who came on board in December, presides over a staff of 27. The museum maintains a busy exhibition schedule that includes displays from its own collection as well as visiting shows. It is renowned for its holdings in Oriental rugs, Islamic rugs and textiles (including early Egyp-

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Myers acquired fine prayer rug (left) from Gördes, Turkey, after years of collecting; early purchase (above) proved to be a later, "antiqued" imitation.

Turkoman carpet with geometric *gul* motif was woven in 18th century by a woman of nomadic Tekke tribe.

tian and Spanish pieces), Greek island embroideries, Indonesian fabrics and Spanish-Colonial and pre-Columbian Peruvian textiles. Right now, the museum is exhibiting contemporary Navajo rugs and wall hangings and a selection of Turkish rugs from its permanent collection. In the autumn, a major exhibition will be mounted. Entitled "Woven from the Soul, Spun from the Heart," it will feature 16th- to 19th-century Persian carpets and royal garments.

The museum has had a tremendous impact on the analysis and conservation of textiles, especially through the publication of its *Workshop Notes*, from 1950 to '61, and the *Textile Museum Journal*, from 1962 to the present. During the 1960s, its staff developed techniques for mounting and storing fabrics that became prototypes in the field. In 1966 the museum published research curator Irene Emery's *The Primary Structures of Fabrics*, which remains a basic reference on the importance of structure in the analysis of fabrics. Many former interns and junior staff who trained there are now at other museums, including Margaret Fikioris, Textile Conservator of Winterthur Museum; Milton Sonday, Curator of Textiles at the Smithson-

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# KITCHENAID® FOR THE WAY IT'S MADE.™

Found in a grave in Peru, tunic once worn by a Chimu nobleman is of gauze-and-tapestry weave with tassels.

Silk patola, a cloth made in Gujarat, India, prior to 20th century, is rare for its large elephant motif.

ian's Cooper-Hewitt Museum in New York City; and Nobuko Kajitani, who heads the Textile Conservation Department at the Metropolitan Museum of Art.

"I was at the Textile Museum in 1964 and '65," says Kajitani today, "and they had the best conservation department in the whole world at that time. The most valuable thing I learned there was the comprehensiveness: studying textiles from so many different points of view—history, archaeology, anthropology, ethnography, textile technology, technical conservation work, conservation science. And there was a great need for this comprehensive approach because of the nature of the collection Myers had assembled: he wasn't so interested in those fancy textiles developed for kings and queens—those he avoided. He went to the original places—places where textiles were indigenous and had evolved by themselves."

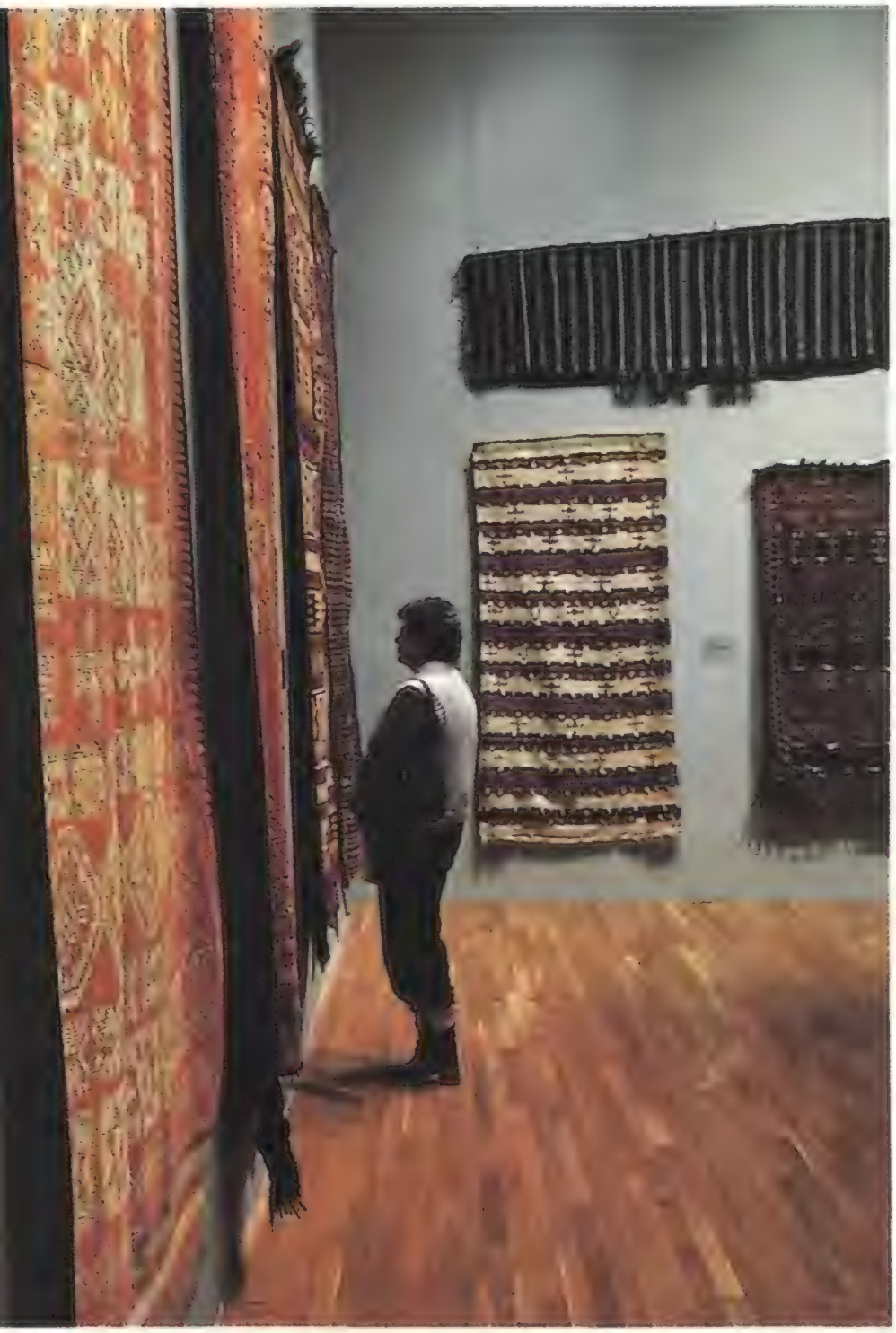
But often, for that very reason, some of the most basic questions—who made something, how, where—are still being answered about items acquired by him and by the museum. Perhaps the best way to illustrate the variety of challenges these textiles pose is to take a close look at a few specific examples in the Textile Museum collection that come from very different cultures.

Two unusual tapestries (details on pages 108 and 117) at the Textile Museum are part of a group that for years stumped the experts on the most fundamental question of all: where had they come from? Around the turn of the century, several dozen of them were scattered among various museums and collections. What confused nearly everyone was the odd assortment of figures represented on them, including a skeleton wearing a papal tiara (p. 108), stylized peonies, and leaping animals with flames emanating from their

The Textile Museum's airy exhibit space is ideal for carpet display; here, new Moroccan acquisitions, 1986.

It was woven in difficult double-ikat technique, involving intricate tying of yarns prior to dyebaths.

Fireman's coat from 19th-century Japan was worn inside out during festivals to display its eagle design.



In 1981, the museum held the first exhibition of Moroccan rugs ever mounted in the United States.

shoulders (such as those flanking the pelican on page 117) that resembled mythical beasts found in Chinese art. Eventually, in the 1920s, agreement was reached: these tapestries had all been woven in Peru by Indian weavers during the Spanish-Colonial period—at a time when European influence was great and when ships from Manila were bringing patterned Chinese silks to Mexico, which were then carried by merchants to Peru.

Quite an involved puzzle. Yet, to this day, we can't be sure who designed the tapestries or under what specific conditions they were made. Probably, some were used in a church setting: the skeletal figure wearing the papal tiara may commemorate the death in 1621 of Pope Paul V, while the pelican illustrates a Christian allegory of a bird who loved her young so much that she pierced her own breast in order to feed them with her blood.

The Peruvian tapestries represent an extreme case in which finding out even the origin of the pieces took much effort. A more common problem is the difficulty, when a textile is several centuries old, of learning the details of its production: who did the weaving, the dyeing, and how highly was it valued? A Gördes rug (p. 112) at the museum, for example, was made in an area of Turkey where there were strong weaving traditions. But, while we know it was woven either by an Anatolian woman on a loom in her own home or by a weaver in a small-town workshop (more likely a man), we cannot be sure which.

Then there is the dilemma of dating such rugs. There were, of course, many deliberate fakes produced. But even when a date is woven into a piece believed to be authentic, it is not necessarily reliable. As art historian Walter Denny has written in the *Textile*

Ursula Eland McCracken, who became director of Textile Museum in December, presides over staff of 27.

During a "conservation morning," conservator Jane Merritt (right) tells a visitor about her carpet.

*Museum Journal*, "Sometimes these dates were undoubtedly accurate, reflecting the time of weaving of the rug, while at other times an illiterate weaver merely copied the date from an earlier prototype." Sorting out antique rugs, in other words, can be a big problem.

In fact, says Denny, strong demand in the West for these rugs spawned much "traditional" knowledge that is just plain false, even humorous—he cites an American collector who solemnly informed him that his rug came from Bilmem ("I don't know" in Turkish). With some of the "traditional data" so undependable, adds Denny, technical analysis of the rugs themselves becomes all the more important; the fibers used, the dyes employed, the way in which a rug was woven all help to clarify its origins.

In some cultures, traditional ways of dyeing and weaving various textiles still persist, so that close study of today's methods provides insights into past techniques. This is true, for example, of patolas—large cloths woven of silk in the difficult double-ikat technique—that were made in India during the 17th century. The Textile Museum owns an especially rare example (pp. 114-15), with a design of huge parading elephants. Many patolas were produced for trade to Indonesia, where they were so highly valued that they were used only in important ceremonies such as weddings or to wrap sacred objects.

"The only place where patolas are produced today is the Indian city of Patan in Gujarat," says curator Mattiebelle Gittinger. "There, only about three or four families remain that still make them. Each family does everything involved in making one, from preparation and dyeing of the yarns to the actual weaving. The patterns aren't as complex or the dyeing as fine as in the older pieces, but the way of making them is probably exactly the same."

*A laborious process, to say the least*

What makes patolas so precious is their incredibly complex dyeing technique. The pattern, often developed over many generations within a family, is created on the yarns before weaving by tying off small sections of the yarns with cotton threads. These ties resist the penetration of the dye, and by complex retying, intricate designs can be created by using different colored dyebaths (the elephant patola required four). When the ties are removed the warp is stretched on the loom and the weft inserted so that the designs coincide precisely. The process is laborious, to say the least. "There is only one place in Indonesia where they still do double-ikat cotton weaving," says Gittinger, "and it can take up to 12 years to complete a single ritual garment."

As old weaving and dyeing traditions like the pro-

duction of patolas die out, there is a feeling of urgency among many textile specialists. These traditions are carried in living form rather than in the written word. In the early years of this century, a German countess who was traveling among the Turkoman nomads of Central Asia visited a camp of Tekke tribesmen. They were largely an illiterate society, and the repeating geometric motifs, called *guls*, that their women wove into their rugs (p. 112) were traditionally identified solely with their own tribe. In this mobile culture, the carpet was the centerpiece of the home.

The countess asked a woman who was knotting a carpet if the design for the carpet was in her head, since she did not see the woman using a pattern. "No," the Tekke woman replied, "not in the head, but in the heart." That was about 80 years ago. Today, while the Turkoman tribeswomen still weave red rugs, writes Walter Denny, they have "like all nomadic peoples, changed both their lifestyle and their weaving style under the pressures of modern society."

It was precisely these pressures of modern society that George Hewitt Myers turned away from in his collecting. He was drawn in the opposite direction, toward carpets and fabrics that, even when made for others' use, still contained the vitality of personal investment. As Nobuko Kajitani points out, the textiles Myers collected were mostly made to be used by the people who created them. "When people are going to wear and use the textiles themselves," she says, "the quality is always much better. . . . People don't make bad things for themselves." A decidedly unmodern point of view, but anyone who has ever pieced a quilt or knit a sweater for use by a loved one knows that it is true.

Detail of tapestry from Spanish-Colonial Peru, which exhibits Chinese influence, depicts Christian allegory of a pelican who loved her young so much that she pierced her own breast in order to feed them.

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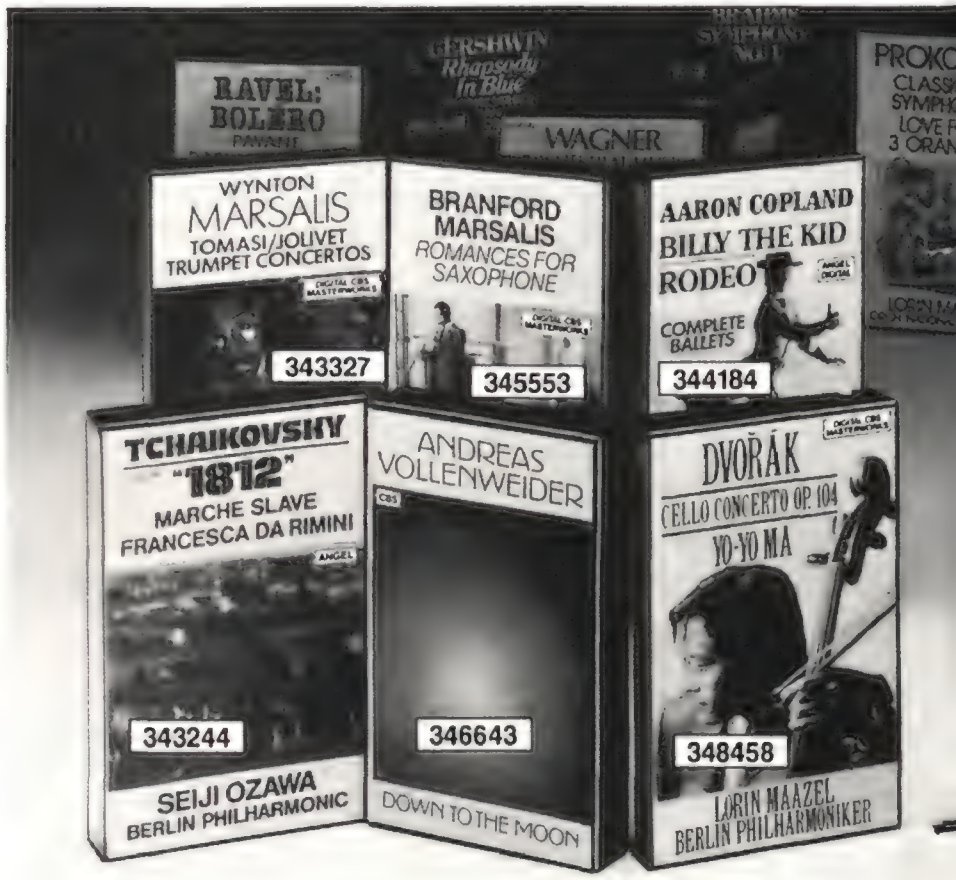


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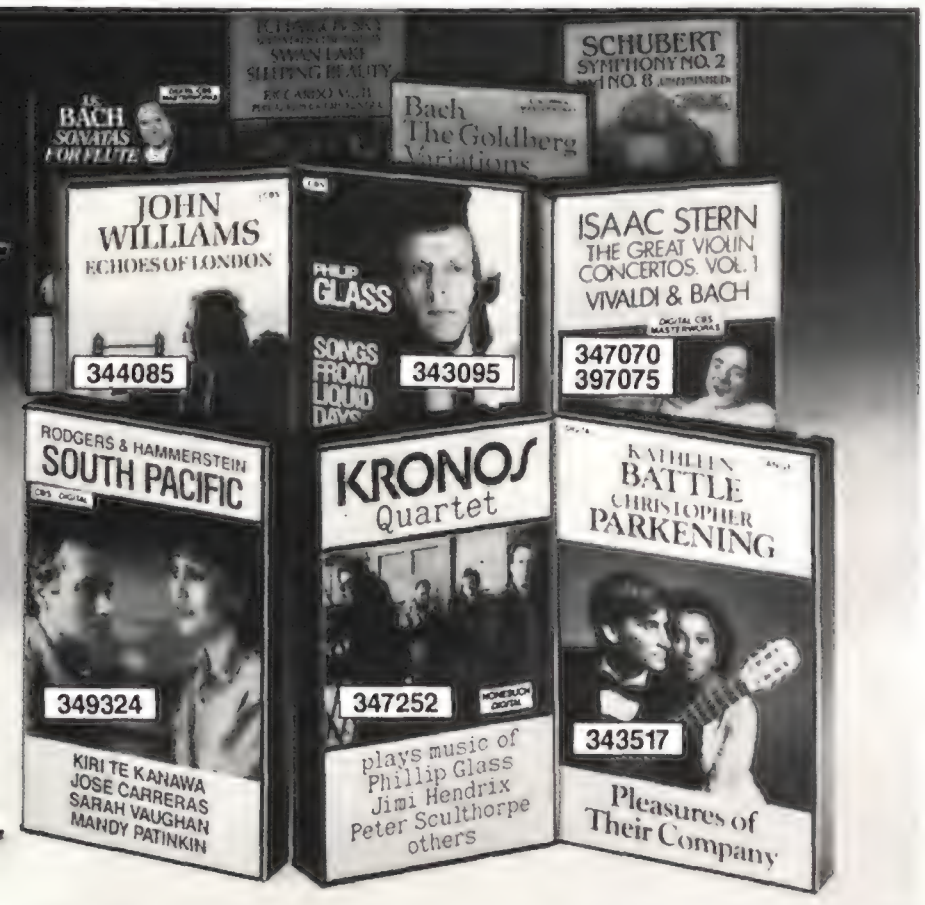


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*By Louis Werner*

# North to Cairo along the scorching Way of the Forty

*Getting 109 camels to market over 1,000 desolate miles of grassland and desert is all in a day's work for these Sudanese drovers*

Ambling north through the grasslands of Sudan, camel herd feeds on acacia trees under Masud's keen eye.

Muhammad glanced uneasily from the dented, sooty teapot over to the four slack waterskins and back to the empty pot. Masud and Adam followed his eyes and understood what worried him: there was neither water to boil our *asida*, a meal of millet flour and dried okra, nor, more important to the camel drovers, to brew our evening tea. For the Kababish Arabs on a 40-day camel drive from the Sudan's Kordofan Province north to Egypt, heavily sugared tea is the sole reward at the end of a 15-hour day in the saddle. To pass the night without a glass of this warming fuel is to feel the desert's cold and thirst all the way to the bone.

A friend and I were accompanying these three drovers, their trail boss Khairallah and a herd of 109 camels on the 1,000-mile drive to the camel market in Cairo (see map, page 122). We'd been invited to join them by the owner of the herd and one of Kordofan's leading camel merchants, Bashir Abu Jayib, in order to document a way of life much like that of the Old West's cattle drovers as they rode the Chisholm Trail. Our route would take us from the heart of the camel-breeding grasslands in the central Sudan, northeast through the desert along the dry Wadi al-Milk, along the Nile through southern Nubia and finally again into the open desert to skirt Lake Nasser, bringing us to the village of Bimban, north of Aswan.

*A dancing Pygmy as a gift*

The Kababish call this overland route the *Darb al-arbain*, literally the Way of the Forty, for the journey's average number of days. Part of the route has been in use since prehistoric times and was first documented during Egypt's Old Kingdom when the emissary Harkouf, sent by the boy Pharaoh Pepi II, returned this way from his exploration of the land of Punt, bringing a dancing Pygmy as a gift to his master. When riverine unrest disrupted trade links, a western desert route was established following a string of isolated wells running north through Egypt's Kharja oasis to Asyut. This more secretive route is still sometimes used by camel-riding runners of contraband.

To our dismay, night had fallen before we reached Umm Kharwa, our first watering place since beginning the drive ten days earlier at al-Nahud (the female breasts), named for two enormous sand dunes to the east of the village. Earlier this morning Khairallah had ridden ahead to Umm Kharwa to make arrangements with watering agents for our camels' thirsty arrival, which we had hoped would be before dark. Now with our waterskins empty, the drovers were upset by the prospect of camping with neither food nor tea after having driven the herd all day through the hot and dusty Hamar territory.

When all the camels were hobbled, a nightly task taking the men only 20 minutes even in pitch dark, Muhammad rode to Umm Kharwa for water. Four hours later, well past midnight, he returned and the teapot was put on to boil. We drank tea until breaking camp at dawn and by midmorning had entered Umm Kharwa's camel-packed well flats.

The camel trade from the Sudan to Egypt is thriving and promises to grow despite Egypt's increasing dependence on subsidized frozen-food imports distributed through government fair-price shops. In contrast

*Photographs by David Melody*

At Umm Kharwa, ten days into drive, goatskin bags are filled with water for the groups passing through.

Way of the Forty follows ancient route from central Sudan northeast through desert, along Nile to Egypt.

to the crowded and understocked government stores, clean and convenient neighborhood butchers sell the freshly slaughtered camel meat at just above the price of government-subsidized frozen chicken and lamb. Here the customer can freely inspect the meat, picking and choosing from one slab to the next.

Each year, some 50,000 head of camels are driven north along the *Darb al-arbain*. Sudanese merchants like Bashir Abu Jayib and their purchasing agents throughout Kordofan Province buy camels from Kabbashi breeders at local markets and consolidate them into herds of up to 200 head. Transfer agents in Dongola, the halfway point on the Sudanese Nile, reprovision the drovers with essentials—tea, sugar and chewing tobacco. At the village of Bimban other agents sell off part of the herd for the market in Upper Egypt and provide onward transport to Cairo for the rest.

Camels three or more years old are driven north. The younger ones are prized for their succulent veal. If fed supplementary grain along the route, they prove strong on the march and command the best prices in Egypt. Older full-grown camels, five to ten years in

*Author Louis Werner and free-lance photographer David Melody are making a documentary film about the Kababish camel drive from the Sudan to Cairo.*

Drovers sip their last cup of early-morning tea before unhobbling their charges and starting the day's march.

Filling up at Umm Kharwa depot, camels get their first water in ten days; each downed about seven gallons.

age, are bought for $350 to $500 in Kordofan and are sold for twice that in Egypt. While a few are used as draft animals, most are bought for slaughter.

Because of the female camels' high local value as breeding stock, few are taken on the drive. In our herd there were only ten, all to be sold to Egyptian breeders. Cow camels also pose special problems: their presence in a herd of bulls causes stampedes and duels.

The morning of our departure from al-Nahud, Abu Jayib's purchasing agent Sadiq Abd al-Wahab had slaughtered and roasted a lamb as a token of *karama*, or esteem, on the trail. The drovers feasted on entrails and ribs before packing the hindquarters and gathering up the herd. All the camels had been freshly watered, grazed and branded on the left side of the neck with Abu Jayib's trail number.

As we left behind al-Nahud's sand dunes, passing camel riders saluted the drovers and wished them safety in the desert. When standing face-to-face, the Kababish greet one another in an elegant ceremony of gentle handshakes followed by simultaneous palm strokes over the other's left shoulder, all the while whispering Islamic salutations. When mounted, they invite each other to dismount and drink tea. Indeed, not more than two hours after leaving al-Nahud, we dismounted to share a pot with a cousin of Khairallah.

Failed rains during several previous years had parched the northern grasslands where the Kababish lived and forced much of their breeding, grazing and marketing activities south to the region of the Hamar people, a tribe of melon, millet and peanut cultivators. (More recently, with improved rainfall, the tribe has begun moving back into its traditional homeland.) For ten days we traversed this land of savanna grass and baobab trees, whose stout trunks are used as remarkable above-ground cisterns. After the two or three rainfalls of late summer collect in the broad depressions at the base of each tree, the water is scooped with leather buckets into a hole high in the trunk. This living reservoir provides the village with its sole water supply during the 11-month dry period.

For the first days of the drive in Hamar country we made excruciatingly slow progress, allowing the herd to graze freely while on the move and making countless tea stops, where the camels foraged unattended. Reherding them was difficult work in the sometimes dense underbrush and among the acacia trees, whose long green thorns they preferred to the dry grasses. Before setting off again they had to be driven single file past Khairallah, who counted each one with a lazy drop of the hand.

The men would then take up their customary places

Billa Ali, having sold back camel that drovers claimed he stole, shoulders gear before walking into desert.

around the herd, analogous to the point and drag positions of cattle drovers of the American West. Masud and Muhammad rode *jaab* at the herd's rear, urging the camels from behind and picking up strays. Adam rode *makhruja* at the left front and Khairallah rode *maddaja* at the right front. As camels tend to drift to the right when moving together, the *maddaja,* with a slight flick of a whip, controls the herd's direction. This place is always reserved for the trail boss or *khabir,* meaning expert. Khairallah's verbal commands to the *jaabs* determined our driving speed. At a fast pace the air was filled with the drovers' cries of *Hut, Onk, Heh* and *Birah* (Easy does it)—the four notes of the Kabbashi chorale.

Umm Kharwa was to be our only plentiful water before we reached the Nile in another 15 days. Most herds on their way north pass through this dusty village, whose economy depends on the migratory-livestock watering business. The owner of a well, the watering agent, and the water drawers split the $3 fee for each 25-foot-diameter mud trough that is filled. The deep-voiced bellows and growls of thirsty camels, mixed with the lowing of cattle and braying of donkeys, produced an eerie welcome as we approached from the distance. Drawing closer, we heard the softly hummed work songs of the water drawers, described by one ethnomusicologist as being similar to the throat songs of the Inuit.

*The desert widened to both horizons*

Upon leaving Umm Kharwa and entering the Kababish territory, the thorn trees and grasses thinned and the desert widened to both horizons. A steady north wind drove fine sand into our faces—and at mealtimes into our millet paste and tea. The logic of the Islamic ablution before prayer—cleansing ears, nostrils and mouth—became clear after several days and nights in the *Umm Duhayr,* Mother of Little Eternity, as the Kababish call their desert when the wind is strong.

The Wadi al-Milk, a dry narrow riverbed with low trees and thistles that cuts diagonally across the desert, appeared three days beyond Umm Kharwa. We kept the wadi to our left for the next ten days, staying a mile or so out in the desert in order both to avoid ambushes laid by camel thieves and to push the herd at its fastest pace across flat, empty ground. Every few days Masud was sent into the wadi to fill our waterskins at isolated wells. Being newly tanned, the skins made the salty water as black as our tea.

This was the part of our route where we would cover up to 45 miles during each day and half-night of travel. From dawn until many hours past dark, when Canis Major had already rotated 180 degrees since dusk, the camels crossed this enormous sealess beach, leaving

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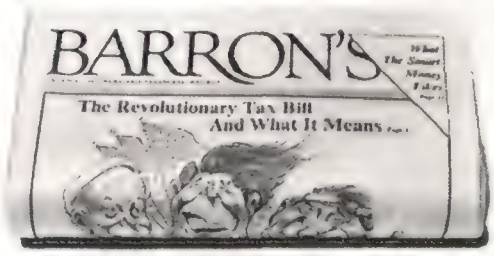


HOW THE SMART MONEY GETS THAT WAY.

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Responsible for the herd, leader Khairallah rode up front, setting the course with flicks of his whip.

Trail boss for another Cairo-bound herd, head drover sometimes made camp within sight of Khairallah's.

their droppings and cloven prints in the wind-rippled sand. The only break in the monotonous view was an occasional outcropping of rock or a white honeymoon tent erected at the edge of the wadi. These tribal "wedding announcements" always brought forth rowdy talk and speculation from the drovers, who spend most of the year away from their families.

After the dusk prayer at a 15-minute rest stop, when all the camels would urinate in unison, we remounted and watched the desert's reddish hues, only fully apparent seconds before sunrise and after sunset, fade into darkness. Navigating by night was easy for Khairallah in the open desert by "keeping the North Star on the left cheek." I was always amazed the next morning, after hours of a moonless night ride, to find our camp alongside the tracks of previous drives. Old campsites that we might pass at midday, with three blackened fire stones, dung piles and perfectly aligned sand nests made by camels sleeping nose leeward, evoked the same nostalgia for tea and fellowship celebrated by Bedouin poets in pre-Islamic odes.

During the precious hour when we stopped at noon the drovers were never at rest. Camel chores, such as patching sore foot pads, refitting saddlebags and fetching wandering camels, occupied every minute. Muhammad stayed busy with the fire, teapot and millet paste, whose simple recipe of flour and water required constant stirring with a heavy stick. After the paste was mixed and hand-patted into a dry round lump, the sauce was made from dried okra, tomato and chili powder. The informal Kabbashi word for this thrice-a-day meal, *lukhma,* is best conveyed in English as grub.

On the 17th day, while waiting for Khairallah to return from his search for a camel separated from the herd during a night drive, we brought the camels into the wadi at Idd Ahmad, a small outpost of settled Kabbashi goatherds. A band of locals met us at the wells and filled the mud watering troughs. Though shallow, the wells needed constant dredging and shoring up from the inside with tree branches. For every half-bucket of water, out came two buckets of sand. Upon the empty-handed arrival of Khairallah, who had ridden all night in his search, we prepared tea.

The goatherds, conscious of their unglamorous life compared with that of their camel-driving tribesmen, were eager for us to stay and tell stories. So too was Billa Ali al-Qurayn (Little Horned One). A resident of Idd Ahmad, he was reputed to be a notorious camel thief of the wadi. He had met us at the well with a shifty greeting and a complicated story concerning the camel he now rode. At one time it had belonged to one Osman Billi, was then bought by Abu Jayib, then lost on a night drive and recently found by Billa Ali in the wadi. He demanded a $50 reward from Khairallah before handing it over.

Billa Ali's elegant attire—clean white riding tunic and turban, silk vest, silver earring, tooled leather cartridge belt and saddle, and conspicuous carbine—was in vivid and suspicious contrast to our dirty and ragged clothing. Even more unusual about this character was that after sharing our meal, sleeping by our fire and pocketing the reward, he shouldered his camel gear and carbine and walked off across the sand to no discernible destination. Khairallah later explained that Billa Ali's modus operandi was to demand reward money for camels that he himself had stolen. Because the carbine was the only law within many days' ride, an unarmed drover had no choice but to meet his terms.

Two species of carrion-eating birds followed our herds like seagulls over a fishing boat; when we broke

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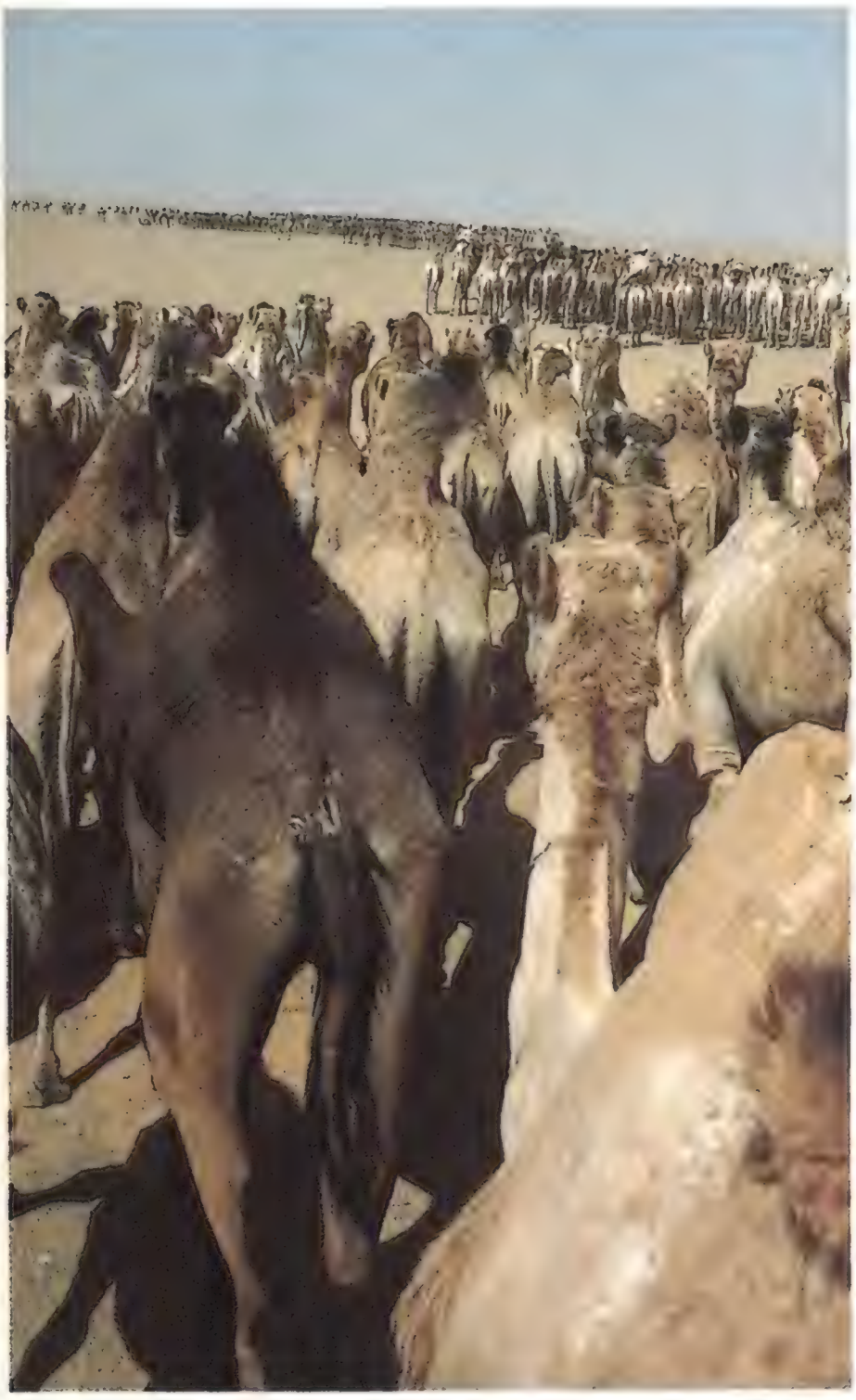

Toward the end of the drive, camel herds converge in the Egyptian desert for the final march to Bimban.

camp they watched for the occasional exhausted camel that could not regain its feet and had to be left behind with its throat slit—a mercy killing. The Kababish called these birds *Umm Rakhm Allah* and *Abu Jum-juma,* Mother of the Vulture of God and Father of the Skull. The trail was littered with sun-bleached camel skeletons; often the gleaming bones, some carefully stacked, served as trail cairns. Given our chronic hunger, it seemed strange to me that the Kababish considered the meat of camels that died of trail fatigue too "tired" to be eaten.

Still days before the promise of the Nile, we marked our progress in passing barren mountains with such names as Father of the Ax and Daughter of the Mother of the Sea. They appeared on the horizon at dawn, stood beside our midday camp and disappeared behind in the dusk light. Rare thorn trees standing alone made much-appreciated campsites in spite of the hundreds of spotted ticks, also enjoying the shade, that would swarm up our legs. Luckily, these ticks had been spoiled by camel blood and had no taste for humans.

The night before we were to reach the Nile, a baby camel was born. The next morning it lay beside its mother with kinked, white curls glistening wet in the sunrise, too weak to rise to its feet. We would have had to abandon it had not a donkey rider come upon us on his way to a Nile village and accepted the foal as a gift. He hefted it behind the saddle and went happily on his way. Although eager to reach the Nile ourselves, we had to delay our arrival until midmorning in order for the thirst-weakened but fickle camels to be more disposed to drink in great quantities.

*We saw the Nile's thin green sleeve*

Our first indication that the Nile was near, several days before, had been the cloud masses in the northeast of a normally empty sky. Today, more tangible evidence was a loosely strung telegraph line that we could barely pass under. Coming over a dune, we saw the Nile's thin green sleeve of date palms, winter wheat, beans and water grasses. Drovers and camels alike scrambled for the riverbank and a long-awaited drink.

While Muhammad brewed tea from Nile water, we unloaded the riding camels, watching from high on the steep bank the frenetic watering scene below: camels snorting, pawing, slurping and finally just staring at their own reflections. Local farmers left their fields to sit with us and admire the herd that was now halfway to market. Our walking bank account of $50,000 would soon be doubled in value.

After a second pot of tea, a profligacy unknown in the desert, we resaddled and set out due north, staying well into the sands but within view of the river. It became our game to count palms, minarets and curls

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In Cairo, Muhammad Abd al-Aziz, savvy auctioneer, price fixer and deal guarantor, sizes up new arrival.

of smoke from a cookfire—anything to remind us of the food, drink and rest nearly within reach. But confined to the camel on the desert fringe, with the unexplored pleasures of riverine life now beckoning, and being passed by honking trucks on their way to Dongola, I soon tired of the unbearably slow pace of what momentarily seemed an anachronistic, romantic stunt.

On our 25th day, Dongola promised to fulfill our desert-driven expectations of urban reward. The day was spent squatting, sitting and reclining on the floor of the market stall belonging to al-Amiri Yasin, Abu Jayib's agent, smoking and recounting tales of Billa Ali and the wadi for all the assembled merchants. The trail boss is a celebrity for anyone who must earn a sedentary living measuring out dates, rice and beans.

Dongola is an agricultural town and the political and cultural capital of Sudanese Nubia, a foreign world to the Kababish of the desert. Unused to bountiful supplies of fresh fruit, water jars on every corner, and unveiled women transacting business, Khairallah barely ventured out of the stall's doorway and cared to taste not one mango, orange or banana. Instead, after purchasing dried chewing tobacco and our resupply of sugar, tea and millet flour, he hired a Toyota to drive us back to the camels waiting on the edge of town. He seemed to have no regrets about leaving this land of plenty with so little to remember of the visit.

The next several days offered dwindling succor to our tired backsides. Signs of modernity thinned and the electric line from Dongola terminated, darkening our night rides once again. The truck route had now crossed the river, so we were left to ourselves and the isolated Nubian villages on the west bank. We slowed the pace to feed the camels on water grass and the rubble of harvested beanfields. It was possible to walk most of the day beside the river on the firm bank and to scavenge for remains of last year's date crop. The fruit of the twin-crowned doom palm, a large nut with a rock-hard graham-cracker crust, provided the mindless diversion of an all-day sucker.

After the fifth day of riding past verdant fields, mud villages ablaze with brightly painted doorways, and the pharaonic temple of Sulb, we topped off our waterskins north of Dal Cataract, near where the Nile begins to back up from Lake Nasser, in preparation for the last leg of our journey. This was to be a forced march parallel to the lake but far enough into the desert to avoid contact with the overofficious and bribe-hungry border authorities. Our encounter with a date-wine-drunk officer of Hamid village had already cost us one day and 25 Sudanese pounds for the infraction of herding "underdocumented" camels.

One day just before our noon break we came upon three large herds being driven from Darfur Province, west of Kordofan. The trail bosses brought their camels to the ground with the customary *sh-sh-sh* command of the far west. Khairallah *kh-kh-kh*ed his camels Kordofani style and greeted the strangers. After swapping their news—the headline story was about an armed night attack by thieves in the wadi—the Darfuris invited us to share the meat of a crippled she-camel they were about to slaughter.

*The skin was laid open like a picnic cloth*

We arrived at the scene just in time to see the squatting camel pinned to the ground with its neck pulled out taut by the rein, and the knife make a 180-degree slash on its underside. The body strained backward, the eyes bulged and blood sprayed over the sand for yards. When the heart had pumped the body nearly dry, the skin was laid open on either side like a picnic cloth and four men undressed the corpse with flashing blades. The ring of onlookers shouted instructions, and finally such choice parts as the hump fat, chest callus, hoof jelly and liver emerged from the shrunken carcass. Each of us had a share of the liver and hump, still hot and raw.

Our drovers collected their quarter-side of camel and returned to the herd. We ate a hurried meal of millet paste before setting off on what seemed like the longest, hottest, most fatiguing afternoon march of the trip. We stopped only for the sunset prayer and continued until after midnight. I was too exhausted to stay awake at the fire for the meal to be prepared, but my sleep was interrupted throughout the night by movement at the fire and much laughter. I could even

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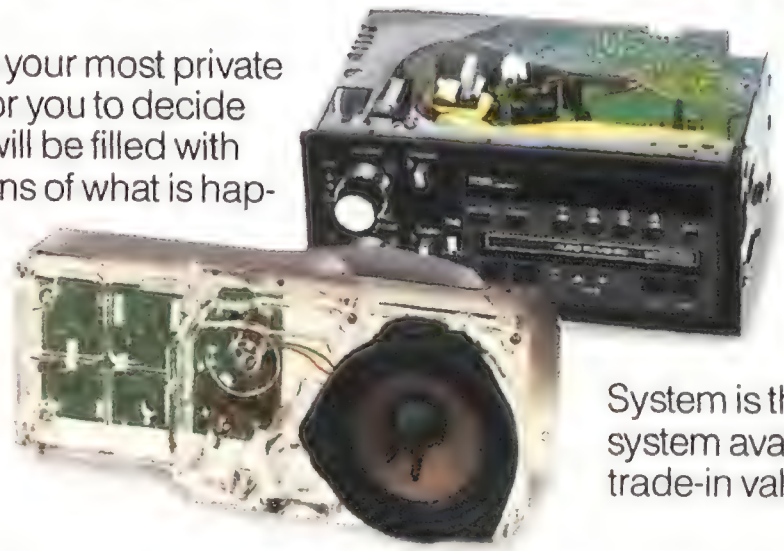

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Their job done, drovers load a truck with wooden saddles, cookware and new purchases for return home.

make out the animated whistle and chatter of the generally stone-silent Muhammad. The earliest light revealed the cause of my insomnia. All night the drovers had chopped the camel meat into thin strips and hung them to wind-dry on rope slung between saddles. The hundreds of bits of darkening red meat were to be our movable and slowly putrefying feast for the last seven days of the journey.

After several uneventful days, again riding very late, we watched the bright glows of, first, the Aswan Dam and then the city proper approach and pass behind. We crossed an asphalt road, frightening the camels as we climbed steeply up and over its embankment in the midst of the sand flat. There were other finish lines to cross the next morning—electric lines, more roads, rows of windblown garbage—before seeing the Nile Valley for the second time since leaving al-Nahud.

The mood, however, was much different from our arrival on the Sudanese Nile near Khaliwa 20 days before. The drovers sensed they were in strange surroundings, perhaps at a disadvantage at the hands of Egyptian hard bargaining and double-talk. Their status as men of the desert was not esteemed here. Still a mile from the village of Bimban, we were met by four donkey-riding merchants who swarmed over the herd with barely a word of greeting, eager to mark and reserve camels for later purchase. They regarded our mounts only as business opportunities and not as the beasts of God-favored beauty and strength that they were to the Kababish. The fragile spell of the desert was completely broken now.

Abu Jayib's transfer agent, Hassan Ahmad Abd al-Majid, met us at his stable in Bimban with a large tray of food, which the camel buyers managed to crowd around first and nearly keep us from altogether. The drovers were fully occupied with the camels, keeping them herded, carrying straw from Hassan's stable and cutting out the ones for local sale. Khairallah accepted a Cleopatra-brand cigarette and withdrew from the clamor. Merchants in pursuit with offers to buy his saddle, knife or camel were met with the otherworldly expression of one just awakened from a long sleep.

At Bimban, Abu Jayib's camels were fed, watered and, because the seasonal price was strong, many were sold for the same price they would ordinarily bring only in Cairo. After much shouting between agents, merchants and drovers, 60 of the 109 in our herd were sold. The remainder were driven two days north to Isna and loaded onto trucks bound for Cairo.

Five hundred miles and 24 hours later, the trucks rumbled into Egypt's principal livestock market. The Cairo camel market, near Imbaba across the railroad tracks on the city's west bank, comes to life every day well before dawn. More than camels trade hands here, as one can find horses, donkeys, water buffalo, goats, sheep, animal harnesses and clothing in any one of the many mud-walled enclosures. Camels take center stage, however, the paddocks filling throughout the morning with herds recently arrived from the drive, their drovers, white-robed Sudanese merchants like Abu Jayib and his son Mahdi, Samsonite-carrying Egyptian meat-broker millionaires and their bagmen, bookkeepers and fallahin—all revolving around the kingpin of this kinetic panoply: the camel market's own King Solomon, Muhammad Abd al-Aziz (p. 128).

*Holding court from behind sunglasses*

This portly gentleman, always seated on the wide reviewing bench in the middle of the paddock, surrounded by eager buyers and sellers, acts as auctioneer, price fixer and deal guarantor wrapped into one. His grandfather emigrated from Saudi Arabia at the turn of the century with an acutely discriminating sense of camel flesh and founded this market. The Abd al-Aziz family quickly established itself as the indispensable trade link between the Sudan and Egypt, the desert and the metropolis, the herder and the wholesaler. Now attended by his many offspring, one of whom will eventually be named heir to his throne, Muhammad holds court from behind sunglasses and under a distinctively folded turban.

Sales are conducted one-on-one—one buyer, one seller and one camel at a time. Muhammad eyeballs the camel cut from the herd, mentally weighing its dressed meat, and now sets a fair price containing a small margin for his commission. His authority is usually sufficient to settle any differences, but if either

buyer or seller cannot accept the price they both must withdraw and are replaced by another willing pair. Each sale is recorded in a huge ledger and no money can change hands until Muhammad assents.

The Kabbashi drovers remained at the camel market until all of their herds were sold off, perhaps up to two weeks. Even on the outskirts of a city of ten million, Africa's largest, they continued to fill teapots from waterskins and boil millet flour over an open fire. With their wages they made purchases for friends and family in Kordofan, visited the mosques of al-Azhar and Sayyidna al-Hussayn in the old city, and settled old debts among their fellow tribesmen. Many other groups of drovers were at the market at the same time, and most were acquaintances, friends or relatives from home villages. The spirit in the open-air drovers' dormitories was similar to that of the summer-long encampments at their tribal wells; this was a time to reaffirm the bonds between lineages and clans.

Only when all of the camels from our herd had been sold did the drovers prepare to depart for Kordofan. Each proudly wore a newly purchased garment; each carried at least a token of the metropolis. They loaded wooden saddles and burlap sacks stuffed with cooking pots and the beloved teakettle onto the Toyota that would take them to Cairo's main railroad station. Their return would be to Aswan by train, thence across Lake Nasser to Wadi Halfa by steamer, on to Omdurman by rail and, finally, to Umm Badr by lorry. The entire journey would take more than a week, one day for every six of the camel drive north.

Joined by another group of drovers also homeward bound, they formed a circle in the paddock and, with arms outstretched and palms open, recited a rhythmic prayer for safety while traveling. With solemn handshakes and words of farewell, the drovers left us and the Cairo market. In several months, before the blasting heat of the Saharan summer would end the drive season, they promised to be back with another herd. Khairallah's easy laugh as he asked us to accompany another drive almost made me forget the still-fresh body aches and hunger pangs of the Way of the Forty.

Feeling right at home along the Way of the Forty,
Khairallah's second cousin relaxes just after sunrise.
On this drive he worked for another herd, sleeping,
as do all drovers, on a tarp spread under the open sky.

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## THE EXPERIENCE CRUISERS COME BACK TO.

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LIBERIAN REGISTRY

*By Gurney Williams III*

# A chirping 'bird' helps rescuers find planes that vanish

*Hundreds of crash victims owe their lives to a gadget that transmits distress signals via satellite. Mike Ryan is one of them*

As a professional movie stunt driver, Mike Ryan was accustomed to working his way out of tough spots. But shortly after noon on a brilliant August day in 1985, Ryan suddenly found himself in the most dangerous situation of his life, with no Hollywood crew to watch over him. He was at the rear-cockpit controls of his blue-and-white Starduster biplane, heading west toward some highlands after taking off from the airport at Grants, New Mexico. The plane was acting sluggish and Ryan thought about turning back. Instead, with his speed hovering barely above a stall, he decided to circle in an attempt to gain altitude. He made it to about 800 feet above the ground when a powerful downdraft blew him straight toward the trees.

The next few seconds seemed to pass slowly, like frames clicking at a leisurely pace through a film-editing machine. First frame: the plane crashed, skidding a few feet down a hill. Then the nose dove into a pile of rocks, and the tail popped into the air. Next: the engine broke away from the airframe, hit the top wing, ruptured the gas tanks and punched into the front cockpit. In the same instant, gasoline showered over Ryan just as his shoulder harness broke. "It's gonna blow," he thought as he felt the spray and smelled the volatile fuel. Last frame before blackness: Ryan's face pitched forward into the cockpit's instrument panel.

The plane didn't blow up but Ryan was in serious trouble. The rudder pedal had speared his right heel, his face was a mess and no one knew where he was because he hadn't filed a flight plan. A rule of thumb well known to rescue personnel is that half of all people who get lost in remote areas die within 24 hours. Ryan was more than lost. He was in danger of bleeding to death.

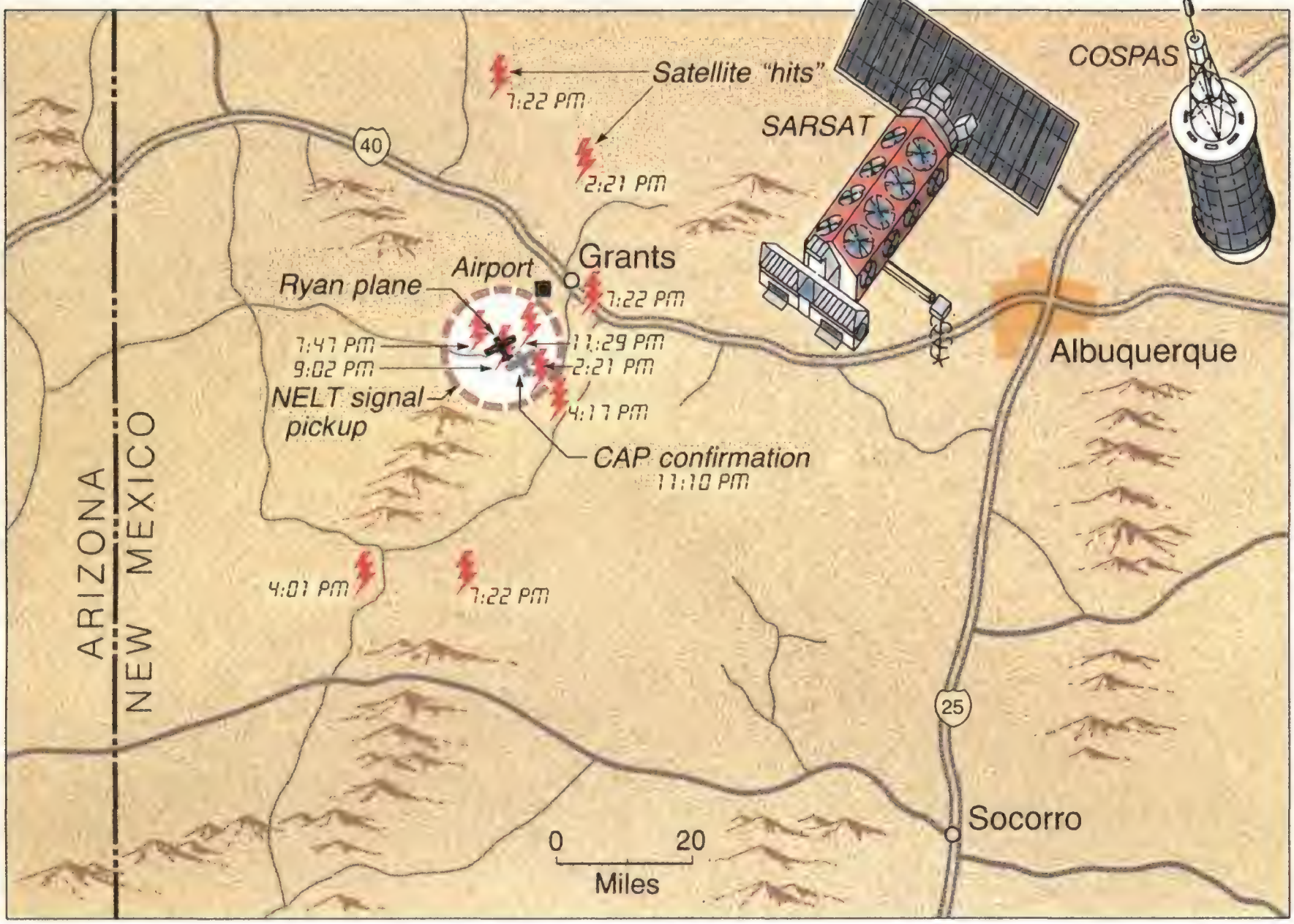
There was one thing working in Ryan's favor: an international satellite rescue network that had saved the lives of 468 people since it went into operation in 1982. The sophisticated system continues to aid fliers and seamen in distress throughout the Northern Hemisphere today. Its sensors are three Russian COSPAS satellites and two American SARSAT satellites, each circling the Earth every 100 or so minutes in a near-polar orbit about 600 miles high. (SARSAT is an acronym for Search and Rescue Satellite-Aided Tracking, and COSPAS is the English phonetic spelling of a Russian acronym for the Space Project for Searching for Vessels and Aircraft in Distress.) These sentinels pick up distress signals from emergency transmitters stowed aboard planes and ships. The satellites relay the calls for help back to a dozen ground stations in six countries. Others in the network besides the United States and the Soviet Union are Bulgaria, Canada, Denmark, France, Great Britain and Norway. India, Brazil and Sweden are involved informally, and Brazil expects to build a ground station soon.

New Mexico State Police

Ryan's battered biplane sits on rocky hillside south of Grants, New Mexico. He was seated in rear cockpit.

Veteran searcher Rick Goodman reads compass while colleagues pick up signals on portable antennas.

*Photographs by Robert Frerck*




Thunderbolts on map plot the locations of satellite "hits" made on Ryan ELT signals starting at 2:21 P.M.

CAP plane reported strong reception south of airport at 11:10 P.M. and rescuers found the wreck nearby.

Before Ryan went down, the network had proved itself in a variety of situations. It led rescue ships to a capsized catamaran 300 miles off the New England coast, where three sailors were hauled to safety in 25-foot seas. It located five people aboard two planes that were forced to land near the North Pole. It pinpointed the locations of a glider pilot who crashed in Austria, three people whose plane went down in the Pyrenees and two canoeists who capsized in the white water of the Tashka Rapids southwest of Hudson Bay. But for every person saved, many others had died before rescue workers could get to them.

In summer, the New Mexico territory where Mike Ryan crashed is garlanded with yellow flowers, but the volcanic soil is rocky and the craters and cracked lava beds nearby look like the lifeless surface of the moon. In semiconsciousness, Ryan felt as if he were out of his body, watching over the scene on the deserted hill. He had a choice, he thought. He could turn and walk away from the crash toward some distant light, or he could go back to his body. Ryan chose to stay alive. He woke up and untangled himself from the wreck. He pulled the plane's Emergency Locator Transmitter (ELT) out of its bracket on the left side of the front cockpit and set it on top of the upper wing.

Under a 1970 federal law, most types of privately owned aircraft registered in the United States are required to carry ELTs. (Commercial planes are exempt because they're continuously tracked by the Federal Aviation Administration's air-traffic control system.) The transmitter is about the size of a brick. It comes equipped with a motion-sensitive switch that's designed to turn on a distress signal when the ELT is jolted. Ryan had no idea whether his unit was working. The battery was supposed to have been changed every two years, but he hadn't checked it since purchasing the plane a few months earlier.

Ryan had always been adventurous. When he was around 11, the police in his hometown of Oak Ridge, Tennessee, picked him up one day for running a traffic light while doing 40 miles per hour in a go-cart. He grew up as a child of the '60s, but his heart belonged

*Formerly editor of* Omni *magazine, Gurney Williams III is a Rye, New York, writer, lecturer specializing in science, health and the future.*

to the barnstorming era of Charles A. Lindbergh and the *Spirit of St. Louis*. He rode his bike regularly to a grassy airstrip near his house and hung around its collection of old biplanes, admiring the men who piloted them with little more than a stick and a compass.

In a way, his trip in the Starduster was an homage to the era of prop-driven planes. He had flown into Oak Ridge from California to pick up his father, and then the two of them hopscotched north to the annual experimental aircraft show in Oshkosh, Wisconsin. They camped under the wings and talked, laying to rest the last traces of Ryan's adolescent rebellion. After delivering his father safely home and taking his mother up for a white-knuckle roll and loop, he headed back toward California, his spirits still high until the moment he lost control.

*All ELT signals go to one place*

Luckily, Ryan's ELT *was* working and its distress signals would soon be relayed from space by satellite to a small, windowless room in a stately brick building at Scott Air Force Base in southwestern Illinois. Few passersby notice the white dish antenna outside as it slowly tracks the paths of satellites orbiting overhead. Other dishes point toward the sky at Point Reyes, California, and Kodiak, Alaska, but every signal they receive from military and civilian aircraft is relayed to the U.S. Mission Control Center at Scott.

In the control room at the Center, a red light shines on a computer console to indicate that a satellite is within range of the dish and ready to relay any ELT signals it receives during the pass. Then, a murky cloud appears on a video monitor. It takes an Air Force technician to see the automated distress calls in this pattern. Air Force Maj. Billy Heslep served as an interpreter for one recent visitor to the room. "Those are ELT signals," he said casually, pointing to several delicate lines running from left to right across the screen. He grimaced at a broader stroke that began to develop in the middle of the screen, blanketing some of the ELT tracery. "That's probably a pilot," he said, meaning that someone not in distress was transmitting on the frequency band used for emergency transmitters. "I bet we can hear him."

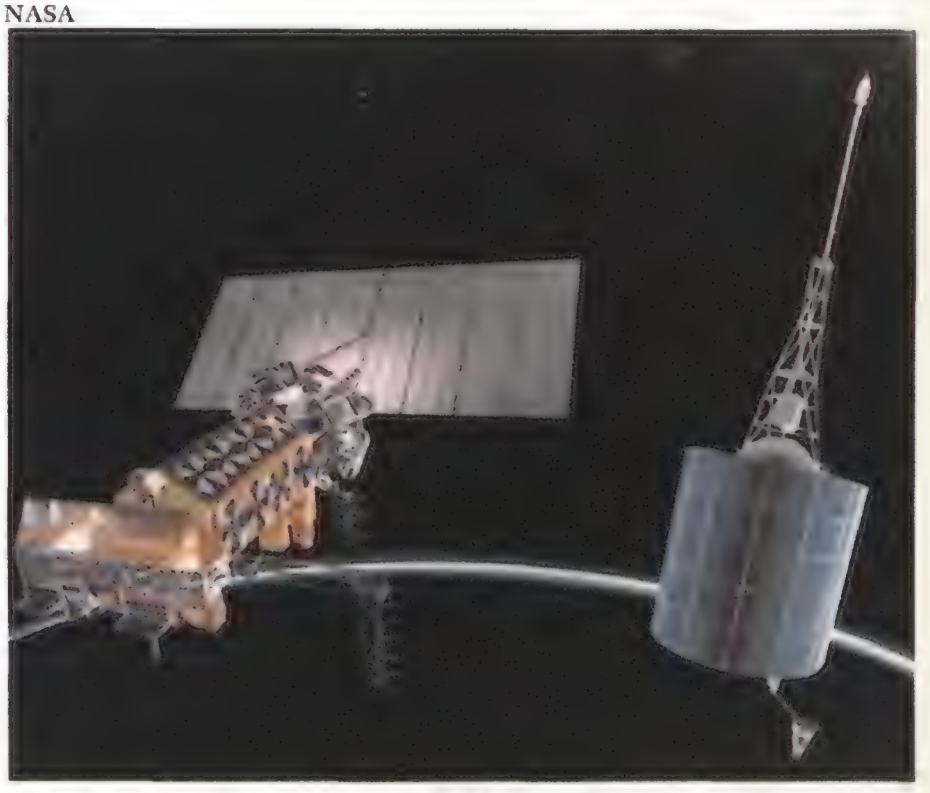
Heslep turned on a speaker, filling the room with sounds from the radio signals caught by the dish outside. In the whoosh of white noise, a human voice broadcast a garbled message. Heslep changed the tuning slightly and found a new sound: the chirping of an automated bird, each chirp starting on a high note and dropping quickly lower. "That's an ELT," Heslep said. Rescue experts say that after you listen to the beacon for a while, you begin to hear it as a series of high-pitched cries: "Help, help, help, help. . . ."

After Ryan put his ELT on the wing, he crawled back to the rear cockpit and retrieved a down-filled sleeping bag. He spread it out on the ground along the trailing edge of the lower left wing and climbed inside. While he slept, at 2:21 P.M., a SARSAT satellite passed over the ground where he lay, streaking across the sky at more than 24,000 feet per second. The satellite completed its pass before 3 P.M. and the computer at Scott began analyzing its signals. It took slightly more than a half-hour to sort out background noise and determine the approximate position of Ryan's ELT.

The physics behind the system is based on a phenomenon named after the 19th-century Austrian scientist who studied it, Christian Johann Doppler. The Doppler Effect works like this: when a train engine rushes toward you, the pitch of its whistle is higher than it is when the train rushes away from you. Similarly, the frequency of an ELT radio signal is higher when a satellite approaches, but the "pitch" drops off as the satellite arcs away. The Scott computer marks the ELT's position at the exact moment the frequency of its chirps stops increasing and begins to decrease.

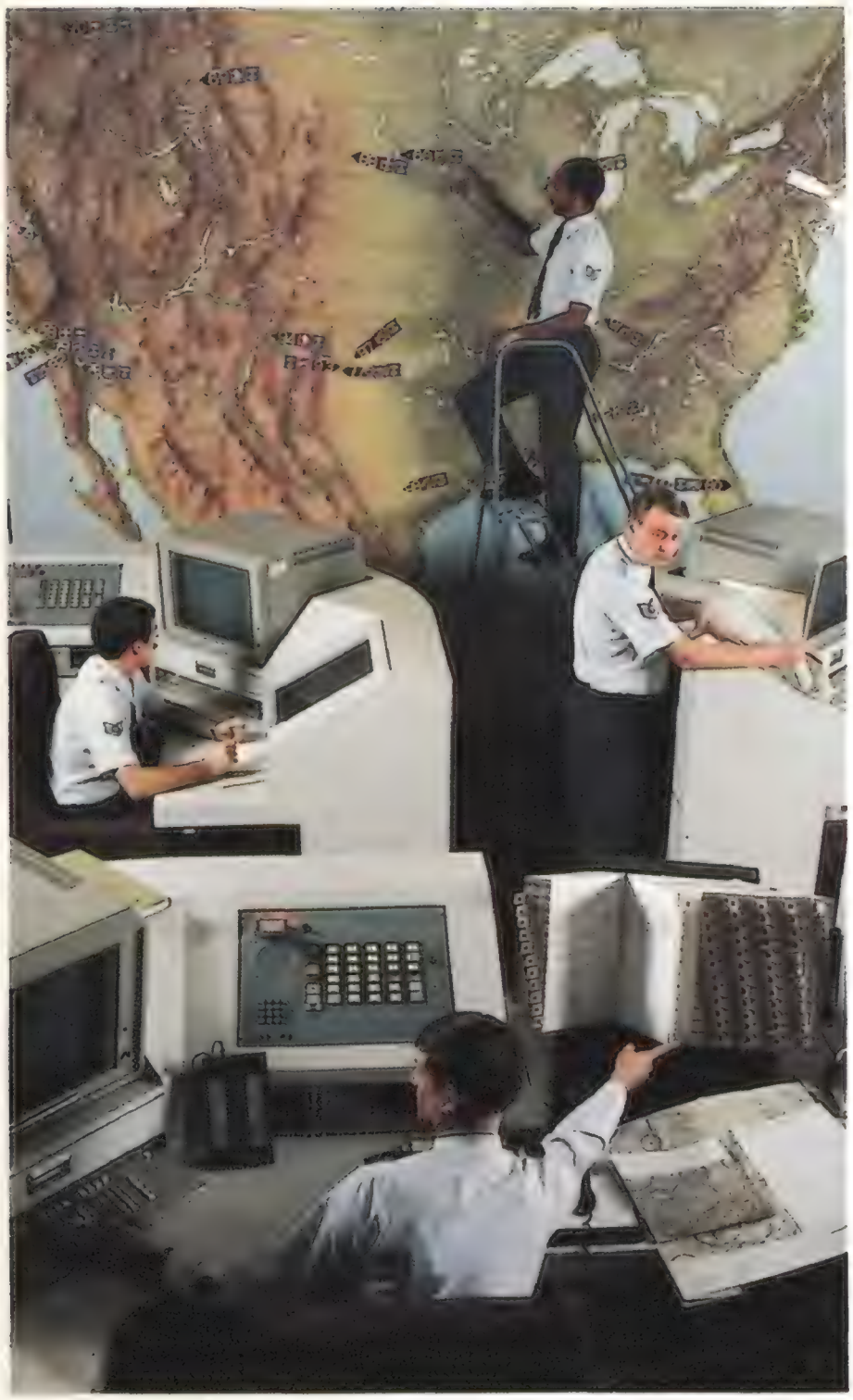
The ELT positions are relayed by computer from the control room to the Rescue Coordination Center (RCC) next door. Here, Air Force controllers analyze the data and decide when to notify local rescue squads. The Scott staff coordinates most searches for military and civilian planes. Searches for privately owned planes are carried out by the 66,000 members of the Civil Air Patrol (CAP), an auxiliary of the Air Force, and thousands of search-and-rescue groups all over the country. At any time of the night or day, these volun-

NASA



They look different, but U.S. SARSAT satellite (left) and Russian COSPAS both pick up distress signals.

*Searching for planes that crash*



Controllers in Rescue Coordination Center at Scott Air Force Base use map arrows to indicate search sites.

teers—including mountaineers, scuba divers, dog-team handlers and spelunkers—are ready to respond to a call from the RCC.

On a typical day in the RCC, several black, magnet-backed arrows on a ten-by-20-foot multicolored map of the United States point to sites where efforts are under way to find the sources of ELT signals. The arrows look surprisingly old-fashioned, like props in a World War II movie. The connection is not as farfetched as it seems. In the years during and just after the war, the military treated hurricanes, floods and civilian plane crashes as on-the-job training opportunities for its rescue personnel. President Dwight D. Eisenhower recognized that this system needed strengthening. The first National Search and Rescue Plan went into effect in 1956. It designated the Air Force as the chief rescue agency for civilians in the 48 states and led to the creation of the Aerospace Rescue and Recovery Service, which includes the RCC. The Service helped retrieve astronauts after splashdowns, assisted in the evacuation of Saigon in 1975 and rescued more than 100 people from the vicinity of Mount St. Helens after that Washington volcano erupted in 1980.

*Waiting for thunderbolts to flash*

Today, there's talk at Scott of scrapping the old painted map and magnetic pointers and replacing them with a large computer-generated map. Already, information about ELT signals received in space is displayed on six full-color video monitors, one for each of the workstations where Air Force controllers—about four per shift—typically handle several missions at once. On the screens, each ELT site is represented by a small colored lightning bolt superimposed on a simple map of the continental United States. A red bolt means that a satellite has picked up an ELT for the first time. Because of technical limitations inherent in the system, controllers can't pinpoint an exact location from a first "hit." Unless there is some confirming information—a report of an overdue aircraft, for example—the usual procedure is to wait for more data from space. A flashing bolt means that another satellite has received a distress call from a previously identified location. The flashing is a signal for the controller to start an investigation—to "open an incident," in Air Force jargon—usually by making some telephone calls to the area touched by the lightning bolt's sharp point. If the calls don't produce an explanation, the controller can upgrade the incident to a "mission" and call out local rescue units.

The first indication of a potential problem somewhere in the Southwest on August 6, 1985, didn't come to Scott from a computer. It came in a telephone call to the RCC from the Federal Aviation Administra-

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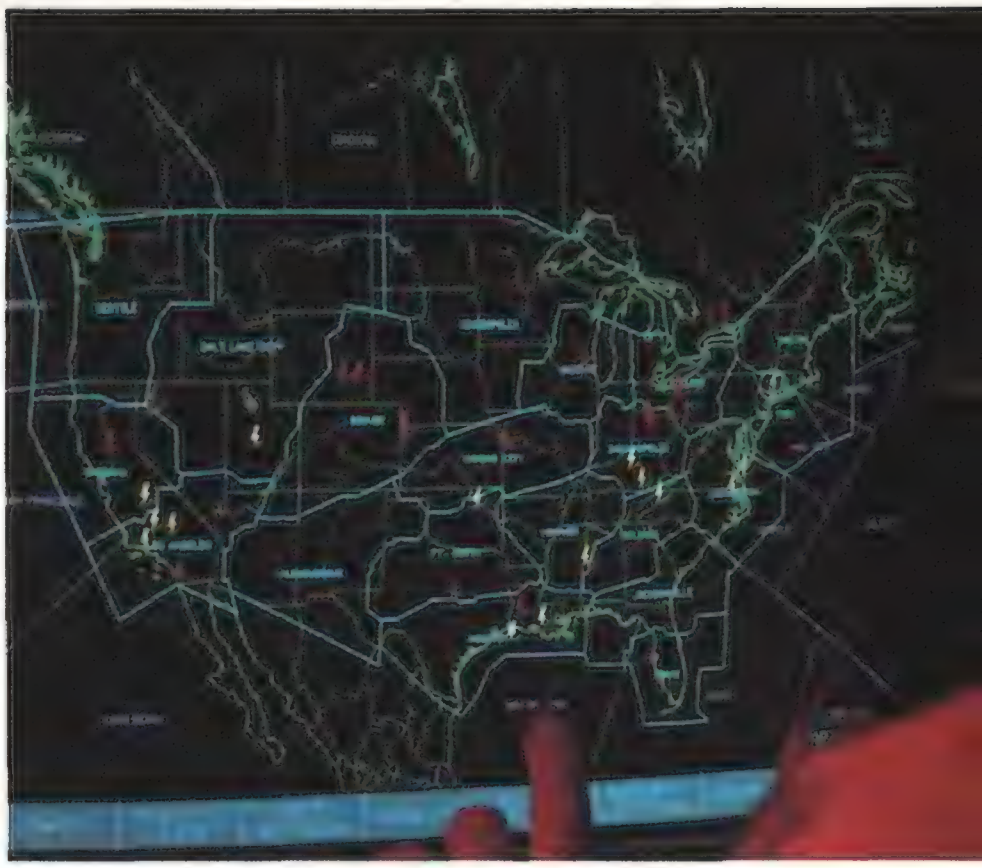

Col. Robert Michelsen (left) displays a poster that is designed to help reduce ELT false alarms. The red thunderbolts on monitor (above) at Scott indicate first satellite hits; 97 percent are cries of "Wolf!"

tion's Air Route Traffic Control Center in Albuquerque. The caller reported that three different aircraft, each flying well above 30,000 feet, had picked up an ELT signal from somewhere below. But those reports weren't of much use to Maj. Ron Lanier, a 19-year veteran of the Air Force who was supervising the RCC on the day Mike Ryan went down. Lanier knew that high-flying planes give only a crude idea of where a signal originates. If a plane picks up a signal at 37,000 feet, for example, the most you know is that an ELT has started chirping somewhere below in a circle with a radius of about 230 miles. That's far too large an area to try to search.

Besides, as Lanier and others on duty that day well know, most ELT signals reported to Scott are false alarms. ELTs frequently go off when mishandled, during bumpy landings or when a battery corrodes. The result is a cry of "Wolf!" each time a satellite passes over. Once, controllers at Scott tracked an active ELT that was moving eastward along Interstate 80 from California into Nevada. The transmitter, it turned out, was in a small plane that was being carried on the back of a truck. Before police could catch up with the rig, the signal had been picked up twice by ground stations, 17 times by overflying aircraft and 11 times by satellites—six American hits, five for the Soviets.

In 1985, the RCC recorded more than 42,000 hits. Most of those cases were resolved by telephone calls to local aviation officials who located inadvertently activated transmitters. The RCC sent out local search teams to investigate 1,725 of those reports—a record high—but only 53 of the missions turned out to be real crises. The cost of tracking and silencing false alarms is currently exceeding $2 million a year.

Scott's officers know that bogus calls for help can engender apathy in the national search-and-rescue community. Sgt. Vincent Price had been working at the RCC for a year and a half when Mike Ryan went down. That was long enough for false alarms to begin to take a toll. "It bothers me," he said during a recent interview. "When I started working here, I would think the worst whenever I received an ELT report and I would act on that. Now that I know what's going on out there, I don't have those feelings anymore."

Still, Price had been trained to treat each ELT signal as a genuine call for help. On the day Ryan crashed, however, there was little he could do with the initial aircraft reports except open an incident. Then, shortly after 3 P.M., the results of the first SARSAT hits appeared on the screen of Price's console. The computer estimated the location of the ELT signal to be in the general vicinity of the Grants airport.

Following established procedures, which are different for each state, Price called the Federal Aviation Administration in Albuquerque and requested an on-site check of the Grants airport. He strongly suspected

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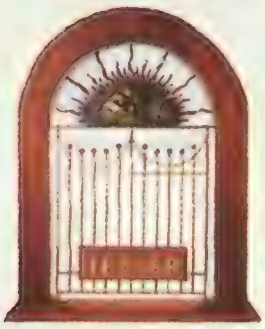

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Al Dickinson

ELT signal triggered search after this plane crashed in Virginia, but occupants died before rescuers arrived.

that an ELT at the little field had been accidentally triggered. At 4:19, Albuquerque called back to report that a check at Grants had revealed nothing. But the airport official who made the check reported a clue: a small plane that had taken off earlier could have been carrying the mystery transmitter. Price hung up and thought over his next move. Then he asked Albuquerque to radio any pilots over New Mexico to listen again for the ELT. If the thing was traveling, he reasoned, it ought to disappear from the area.

At about the same time, two more satellites came within range of Ryan's transmitter, picked up the signal and relayed it to Scott. The computer went to work on the data and, at 4:45, reported two more hits. The data suggested that the ELT signal was coming from within an area south of the Grants airport. The message from one of the satellites agreed substantially with previous data. Still, late in the afternoon, Lanier and Price weren't convinced they were dealing with a real call for help, justifying a mission. Numerous aircraft had flown over the Grants area and reported that no ELT could be heard; another satellite pass had failed to pick up a signal.

By 7 that evening there had been no new reports of an ELT in New Mexico, strengthening a suspicion at Scott that the controllers had been following yet another false alarm. But then the signal reemerged. At 7:25, Albuquerque advised the RCC that aircraft had picked up a weak ELT transmission, and within a half hour the Scott computer system reported several additional hits in New Mexico. Price opened a mission after consulting with the New Mexico State Police. Over the next hour, calls went out to volunteers all over the state. One went to the CAP, which launched a plane from Albuquerque at 9:15 to check out the area flagged by satellite. Another call went to Rick Goodman, a burly veteran of hundreds of rescue missions in the Southwest.

Goodman was out in the garage of his Albuquerque home, working on his Jeep Cherokee. The four-wheel-drive vehicle is always ready to go, loaded with a Radio Shack laptop computer, ham radio gear, a radio direction-finder and a pack filled with enough supplies to stay in the field for at least 24 hours. Goodman is a CAP member and a founder of the National ELT Location Team (NELT), which is not really a "national" group but an association of 31 volunteers who live in New Mexico and share a mutual interest in outdoor detective work. Several members are scientists at New Mexico's renowned national laboratories, Sandia and Los Alamos. They have designed some portable tracking equipment that enables searchers on the ground to narrow an ELT location suggested by satellites and move quickly to the accident site. One such instrument is a radio direction-finder with two antennas that are carried in the field by a pair of volunteers. With this device, rescuers can take "stereo" bearings on distant ELTs and judge the accuracy of those bearings by watching variations in the readings as the two individuals move away from each other.

Goodman is the only search-and-rescue professional in the organization. He teaches law-enforcement groups, the CAP, the military and outdoorsmen, and he manufactures special electronic gear that can be used to locate emergency transmitters. Other NELT members include a bank vice president, a physician, some filling-station attendants and one woman, an artist. "We like a good false alarm," Goodman says. "The idea is to make the electronics and the computer work. That's the kick. And when there's a real mission, the pilot's just luckier'n hell that he's gone down near us. We go to work like the A-Team."

*Pleading with a plane for help*

While Goodman was preparing to leave Albuquerque, Mike Ryan in his sleeping bag was continuing to bleed slowly. Drowsy and weak, he heard a small plane circling overhead. "Help!" he called. He knew that the plane couldn't hear him and he was mildly amused at himself for trying. But he called again: "Help!"

The plane was piloted by the CAP scout from Albuquerque. His radio direction-finder confirmed that there was in fact a strong ELT signal in the vicinity of Grants. By 11:10 P.M. he was able to report that the strongest signal was coming up out of a small area 12

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W O N D E R

miles south of the airport. That area was bracketed by satellite hits recorded at 9:02 P.M. and 11:29 P.M.

A hundred miles to the northeast, in Los Alamos, Bob Cowan, another NELT member, entered all of the locations suggested by satellite and aircraft into a computer. Cowan used his ham radio to tell Goodman and his group of several cars heading west from Albuquerque where to look. Around midnight, Goodman and his colleagues arrived in the Grants area where they were joined by other rescuers. They began closing in on the fluttering ELT signal, using their radio direction-finders.

New Mexico State Police

Ryan's ELT, in its bracket on his plane the day after the crash, bears rescuer Rick Goodman's business card.

In the middle of the night, Mike Ryan knew that he had lost a lot of blood but he had passed into a dreamy state of consciousness, thinking about friends and family and his barnstorming trip. He was irrationally grateful that no one could reach him by phone or by triggering the beeper he always wore on the job. At around 4:30 A.M., forest noises startled him out of his dreams. He feared that it was a mountain lion. "With all this blood," he thought, "it's gonna think I smell like breakfast." He was sure a lion could tear through the sleeping bag, but he was unable to move. He tried calling for help but found that his mouth was too parched. He could only croak. Then, in the middle of the rustling sounds coming toward him from the northeast, Ryan heard human voices—two men yelling at each other. Beams from their headlamps played across the rocky hillside.

Goodman and the others had been watching the signal-strength dials on their radio direction-finders. When the meters showed 100 microvolts, they knew that they were within 1,000 feet of the ELT. They kept walking along old logging roads until the signal began to decline, then doubled back and watched the signal begin to peak again. Even then, they had no idea if there were any survivors. In fact, they weren't sure until they got close enough to hear Ryan call to them with the tattered voice of an old man: "Can you help me?"

In the months that followed, it wasn't easy to help Mike Ryan. Doctors considered amputating his right foot—the one that had been speared by the rudder pedal. He had suffered more than 20 broken bones in his feet and ankles, and his upper lip had been torn to pieces. It took 13 operations to repair his injuries—with 11 metal pins. More than a year after the crash he was still walking with a cane, but today he is back at work in front of the cameras and "looking around for another plane."

In recounting his rescue, Ryan points to one of those eerie coincidences that sometimes accompany life-and-death events. If he had been in the front cockpit of his Starduster, the engine would have crushed him. Instead he had stowed a bag there. It was stuffed with clothes, a Knights of Columbus sword that had belonged to his grandfather and a two-volume set of books. Ryan doesn't discount the amazing new technology that helped save him, nor the extraordinary efforts of the people at Scott and the ground teams in New Mexico. But he's bemused at the title of the books that were in his bag: *A Course in Miracles.*

Almost fully recovered from injuries, Ryan exults atop truck he drove in a photograph for a magazine ad.

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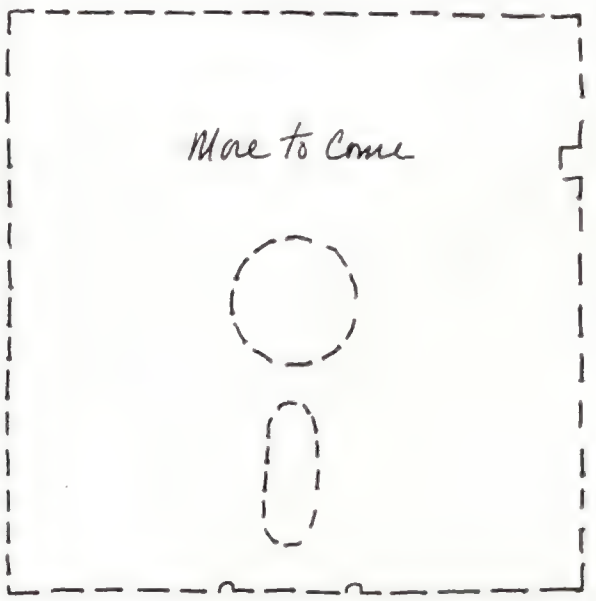


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*By Gina Kolata*

# Are the horrors of cannibalism fact—or fiction?

*Reports about cannibals have been believed throughout the ages, but skeptics argue that most accounts are based on hearsay*

William Arens, an anthropology professor at the State University of New York at Stony Brook, forgets the student's name now, but he wishes he could give her credit. He was teaching an introductory course in anthropology when the student, a young woman, came to his office and asked why he was spending his time lecturing about kinship relationships and politics and economics. What ever happened to the really interesting topics, she asked, the topics such as witchcraft and cannibalism that made her and others want to take a course in anthropology in the first place?

Arens was struck by her observation. He himself had gone into anthropology wanting to know about strange human practices, but somehow he had been waylaid and ended up studying kinship relationships, a traditional and not particularly exciting field. So he decided to add a lecture or two on cannibalism to his introductory course—who did it, when and why? He assumed cannibalism was well documented and the existence of man-eating societies to be beyond question.

But what he found when he began to prepare a lecture on the subject was something quite different. The evidence, he felt, simply was not there. No credible observer has ever documented cannibalism as a custom, Arens claims. But, he emphasizes, he is not saying that there is no such thing as cannibalism; there clearly are instances when people ate human flesh in order to survive. Yet this is quite different from cannibal societies in which people purportedly ate other humans as a matter of custom. "I don't think any anthropologist has come up with any good evidence of cannibalistic societies," Arens says. "And if there is no evidence, we can't say that these societies existed. If I'm right, anthropologists are engaged not in a hoax and not in a lie, but in mythmaking. They are retelling what is always assumed to be true."

It is a provocative hypothesis, to say the least, and Arens has infuriated many anthropologists since he published his book *The Man-Eating Myth* in 1979. Thomas Riley of the University of Illinois at Urbana-Champaign, for example, says that since Arens and his supporters reject reports of cannibalism by early explorers, reject more recent reports by anthropologists and reject archaeological evidence, their reasoning "is along the lines of those few historians who would claim the holocaust of World War II never happened."

Others who disagree with Arens are bemused. Robert L. Carneiro of the American Museum of Natural History says that "there is an *overwhelming* body of evidence that cannibalism was practiced. There must be literally *thousands* of accounts in different societies. There would have to have been the most incredible conspiracy in the history of the world for all this evidence to be fraudulent. The real question is how Arens can sustain the idea that there is no such thing as cannibalism."

But other anthropologists are swayed by Arens' arguments. William Durham of Stanford University remarks, the "interest in cannibalism runs deep. It is just considered the inverse of humanity, unponderable. But although Arens has been challenged, there has been little concrete evidence in response to his charges. I think Arens is largely correct in saying that anthropologists and others have been too quick to suspect cannibalism and too quick to accept it without adequate scrutiny."

### *"The idea of cannibalism is almost universal"*

Fitz John Porter Poole, an anthropologist at the University of California, San Diego, who has actually witnessed a form of ritual cannibalism in New Guinea, says that Arens has done the field of anthropology a service in questioning the cannibalism stories. It is not so important, Poole says, whether there literally are any examples of cannibalism or "whether a given group of people does or does not do it; the holding of ideas about the phenomenon, however, may be almost universal and that fact is very interesting." Moreover, what is important, he says, is that "Arens pointed out,

Cannibalism stories have ancient roots; here, Goya depicts Greek myth of the god Kronos eating his child.

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William Arens on 1968 visit to Tanzania was seen by Masai as a "blood-sucker."

and rightly so, that a great deal of the information that is regarded as historical truth is probably not. Arens is dead right, in at least this regard."

Not only do tales of cannibal societies abound, but virtually every group of people has, at one time or another, been said to be cannibalistic. Although some tribes even now say their neighbors are cannibals, not many seem ready to admit to being cannibals themselves. And although modern anthropologists have written about cannibal societies, they always seem to write without having personally observed the event. Neighboring tribes were their informants, or the tribespeople say they once ate human flesh, but do so no longer. It is a practice they gave up generations ago. "It is a way," says Lyle Steadman of Arizona State University, "of saying how far they've come."

Basically, what Arens and his supporters say is that the old accounts of cannibalism are not credible and that there are few believable modern accounts of cannibalistic societies. Even the popular stories that the mysterious brain infection kuru was recently spread by cannibalism in New Guinea is not credible, these anthropologists insist. Moreover, cannibalism serves as a way to insult people—to say they are less than human—and virtually every group of people has accused its enemies or those it considered inferior of being cannibals. "If you want to say that people are really nasty, you say that they are cannibals," says Erik Trinkaus of the University of New Mexico. Europeans have said that Africans ate human flesh until, of course, they were civilized by the Europeans. But Africans also thought the Europeans were cannibals. The Chinese thought the Koreans were cannibals and the Koreans thought the Chinese were.

Yet we tend to believe only those cannibal tales that apply to societies other than our own, Arens notes. For example, historians dismiss charges by the Romans that early Christians were cannibals and charges by early Christians that Jews drank human blood. And although the women accused of being witches in Europe sometimes admitted that they were cannibals and even ate their own children, historians do not seriously believe that they did this. But until recently most people accepted without question the notion that Africans, Polynesians and New Guineans are or were cannibals.

Arens himself came across cannibalism charges during his fieldwork in Africa. In 1968, he went to Tanzania to study a rural community. Shortly after he arrived, a neighbor shouted something to him in Swahili. Arens asked for a translation. "My guide was clearly embarrassed, and told me it was nothing of consequence; but after persistent badgering on my part, he admitted that his co-resident wanted to know why he was walking with a *mchinja-chinja.* The obvious next query revealed that the phrase was best translated as 'blood-sucker.'" Arens later learned "bizarre stories about these blood-suckers." The Africans thought that

*Gina Kolata, a writer for* Science *magazine, last wrote on obesity in the January 1986* SMITHSONIAN.

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Westerners would slit the throats of the tribespeople and collect their blood. They would transport the blood by fire engine to a hospital "where it was converted into red capsules. These pills were taken on a regular basis by Europeans who, I was informed, needed these potations to stay alive in Africa. I must admit that it was exactly stories of this type about Africans which I had hoped to collect, but I was disconcerted to find myself a central figure in such a drama. At the time I failed to appreciate the political symbolism of the narrative, which cast colonial Europeans as the consumers of African vitality, and paternally concluded that the Africans were entitled to their ignorance."

Arens was somewhat distressed to find that the Africans still persisted in their belief that Westerners were "blood-suckers" a year and a half later when his fieldwork was complete. He believes the story originated when the British tried to carry out a blood drive during World War II for the African troops fighting overseas. A fire engine was stationed nearby at a small airstrip. To the Africans, this was sufficient circumstantial evidence for their belief that the Westerners were cannibals. And, says Arens, now that he thinks about it, "similar beliefs about Africans on our part no longer seem so reasonable."

So what kind of stories are there about cannibals? First, there are countless explorers' tales. According to Arens, these stories tend to be told and retold through the centuries until they take on an air of irrefutable truth. But, he says, a look back at the original material is revealing. For example, there are the famous stories of Hans Staden, "an extraordinary fellow who visited the South American coast in the mid-sixteenth century as a common seaman on a Portuguese trading ship." Staden was shipwrecked and captured by the Tupinamba Indians. He later returned to Germany where he published a book entitled *Hans Staden: The True History and Description of a Country of Savages, a Naked and Terrible People, Eaters of Men's Flesh, who Dwell in the New World called America. Being Wholly Unknown in Hesse*

Old prints like this one of cannibalism in Madagascar are common, but reliable evidence of the practice is scarce.

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A naked Hans Staden, beneath his initials at far right, prays as cannibals stir their caldron and dine, in a woodcut taken from his 16th-century book.

*Both Before and After Christ's Birth Until Two Years Ago, when Hans Staden of Hamberg in Hesse Took Personal Knowledge of Them and Now Presents His Story in Print.* The story is illustrated with woodcuts of the cannibal Indians. Staden, Arens remarks, "is easily identifiable in these scenes as the one in the fig leaf with hands clasped in prayer" (above). Since Staden's narrative is frequently referred to by others "in more abstract discourses on cannibalism," Arens examined it in detail.

He became increasingly suspicious as he studied the evidence. For example, Staden recounts verbatim what the Indians said on the very first day they captured him—how, when and where they would eat him, although it is not clear how he knew the Indian language, or that he took notes, or even that he could read or write. But language barriers seem not to be a problem for the Indians either. In one scene, Staden calls out lines from a Psalm: "Out of the depths I have cried unto thee." The Indians respond: "See how he cries; now he is sorrowful indeed." Arens comments, "One would have to assume that the Indians also had a flair for languages in order to understand and respond to Staden's German so quickly."

Arens also notes that the Indian women were the "worst culprits" in Staden's tales. In the woodcuts, for example, it is the women and children who are actually eating human flesh. This is a common theme in tales of cannibals and occurs again in New Guinea, in the accounts of the transmission of the brain disease kuru. It is a way, say Arens and Steadman, to illustrate the inferiority of women—sort of a subclass of persons who are denigrated by the cannibal epithet.

Travelers who came after Staden confirmed his accounts, frequently with exactly the same dialogue. The Tupinamba vanished after the 16th century, as a result of their contact with Europeans, and so there is no modern information on their traditional culture. Arens concludes, "Although there may be some legitimate reservations about who ate whom, there can be none on the question of who exterminated whom."

But many anthropologists, even those who specialize in South America, still cite the Tupinamba stories and think Arens is wrong to question them. Carneiro of the American Mu-


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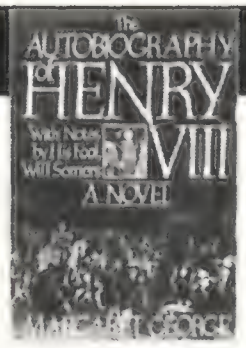


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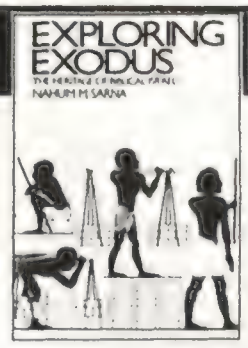


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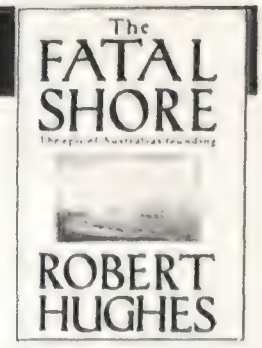


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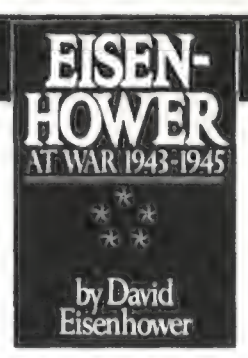


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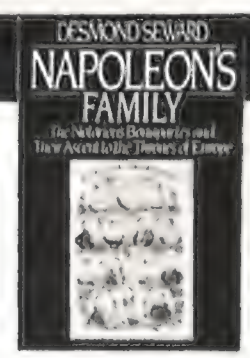


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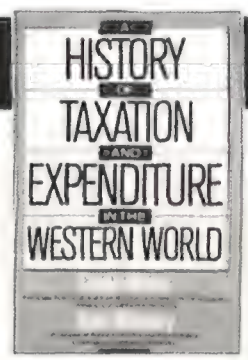


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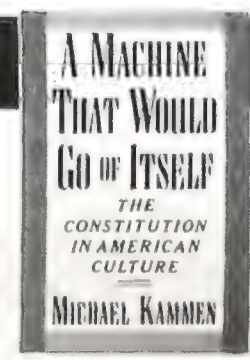


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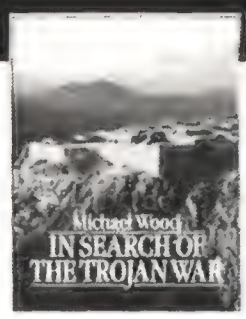


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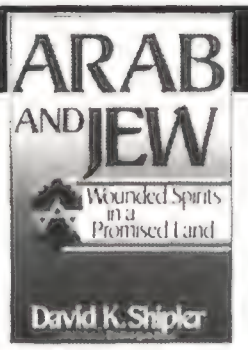


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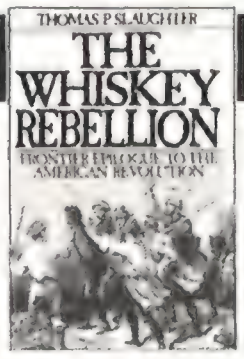


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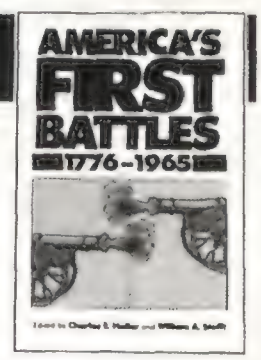


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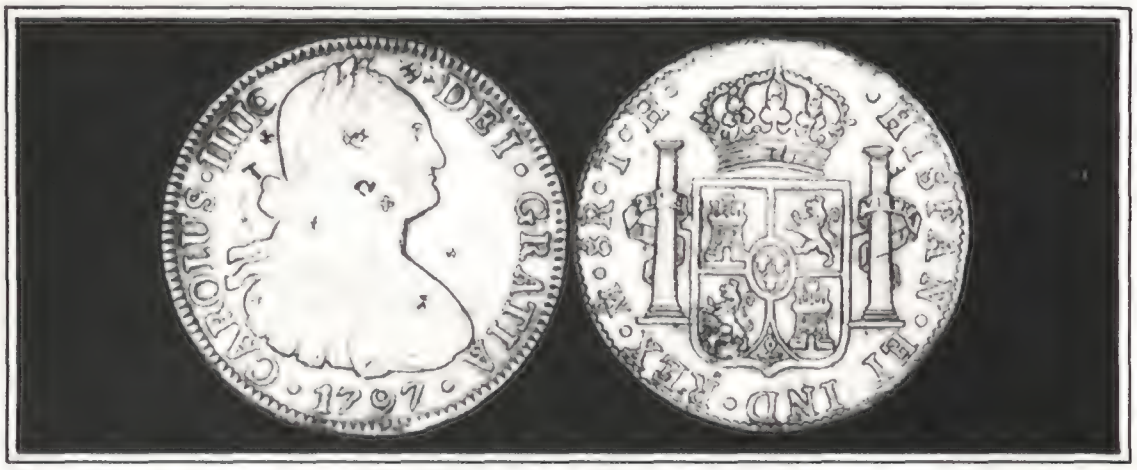

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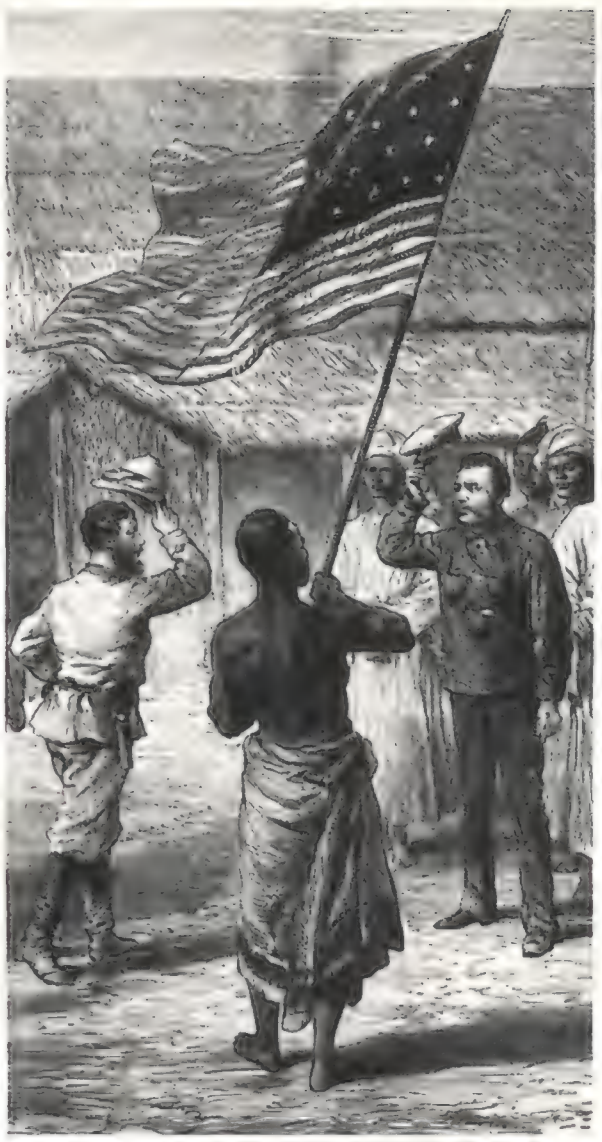

Stanley locates Livingstone in Africa after many brushes with "cannibals."

seum of Natural History, for example, is familiar with Arens' arguments, yet says that Arens is dismissing Tupinamba cannibalism. "There were a dozen or more explorers who came after Staden and either observed cannibalism directly as Staden did or heard accounts of it. The stories are so numerous and most are independent. Yet they coincide and agree in their detail," Carneiro says.

William Crocker, a Smithsonian anthropologist, also emphasizes that Hans Staden's account is persuasive evidence that the Tupinamba ate human flesh. "The information about their entire institution of cannibalism, which covers at least a complete annual cycle, is so detailed and complex that it is unlikely that the whole picture was invented." Furthermore, Crocker maintains that Staden *did* know the Tupi language because several years prior to his capture, Staden

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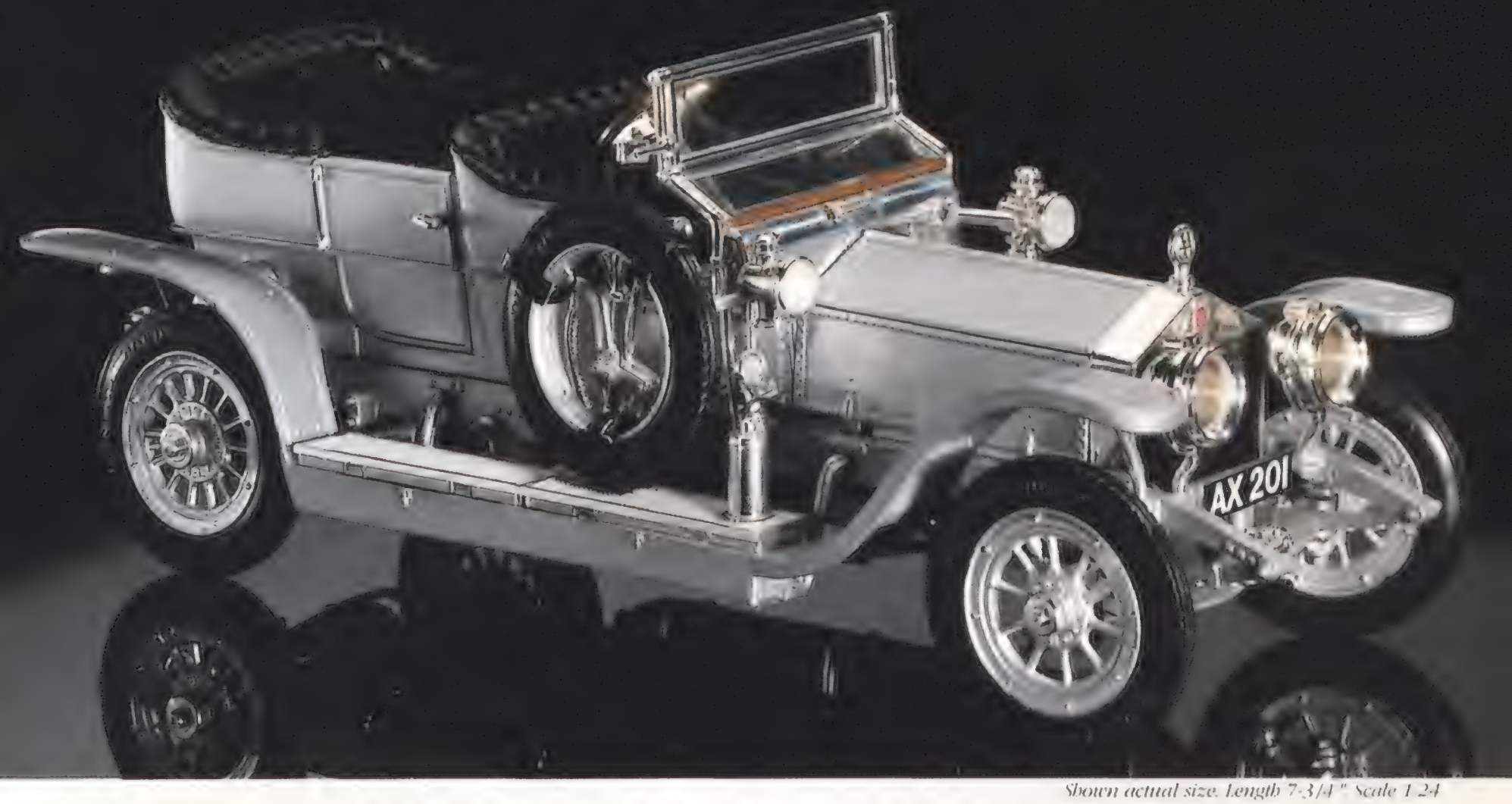


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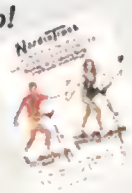

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was in contact with other Tupi-speaking tribes.

But the Tupinamba are just one of many groups that Arens doubts were cannibals. The stories of African cannibalism are just as suspect as those of the Tupinamba, according to Arens. For example, Herbert Ward, in his 1890 book *Five Years With The Congo Cannibals*, wrote that he was told by the Arabs that many of the Congo natives deserved to be taken as slaves because they were cannibals. Ward said he later visited these natives and noticed their filed teeth—a sure sign, he decided, that they were indeed eaters of human flesh. But he was certain, he wrote, that "white men of upright character" would soon "put an end to this."

Then there is the story of David Livingstone and his would-be rescuer, Sir Henry Morton Stanley. Livingstone, who spent much of his life living with natives of east and central Africa, considered the allegations that a group he knew were cannibals and wrote in 1874, "A Scotch jury would say, Not Proven." Stanley, who set out to find Livingstone, had quite

Anonymous and undated old print was entitled "A cannibal butcher shop."

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different perceptions of the African natives. As Arens explains, Stanley's own reports "portray him as constantly set upon, in the very same areas traversed peacefully by Livingstone, by the most bellicose and savage people, whom he was forced to dispatch and rout with regularity." At one point, Stanley wrote, he captured three cannibals. Stanley's guides, Arens says, told him that these cannibals "smelled from the odor of human meat." Stanley, however, does not say he saw cannibalism firsthand. Arab slavers told him about it. These slavers, Arens wryly notes, also spread the word that Stanley and his group were cannibals, "which might explain to some extent his often harsh reception during his adventures."

Picture from Aztecs' 16th-century codex shows their enemy being cooked, eaten.

A second source of information on cannibalism is modern anthropologists. But what is missing is a body of real, credible, firsthand accounts of cannibalism, according to Arens. For example, Margaret Mead, one of the first professional anthropologists to do fieldwork in New Guinea (SMITHSONIAN, April 1983; September 1984), helped fuel the cannibalism literature with her stories of the Mundugumor. She described this tribe in Part Two of her 1935 book called *Sex and Temperament in Three Primitive Societies*. In the ninth chapter, entitled "The Pace of Life in a Cannibal Tribe," Mead wrote in the present tense about cannibalism. But in a footnote, she confessed that she did not actually witness cannibalism among the Mundugumor. The Australian authorities had outlawed it three years before she arrived and she used the present tense, she explained, to refer to the period when the tribespeople were, in fact, cannibals.

The only eyewitness account of New Guinea cannibalism is Poole's report of a group that ate various body parts of their dead relatives as part of a complex ritual. The Bimin-Kuskusmin, according to Poole, classify some body parts as "male" and others as "female." For example, when a man dies, members of his lineage, but not his direct descendants, eat morsels of his bone marrow, which is a male substance, in order to honor him, to ensure the safe passage of his spirit and to recycle his strength among his relatives. His female relatives eat small morsels of his lower belly fat, a female substance, in order to enhance their reproductive power and their ritual power.

Although Poole saw the Bimin-Kuskusmin perform these acts of cannibalism when he lived with them from 1971 until 1974, he stresses that the group by no means considered human flesh to be food. In fact, he says, "these people themselves think that [the ritual cannibalism they practice] is anxiety-provoking and nauseating. I was told that some people fake it. They palm the morsels or put them in their mouth and then spit them out or they vomit them."

Poole also emphasizes that Arens' thesis that the cannibalism epithet is the ultimate insult also holds for the Bimin-Kuskusmin. "They had horrifying stories about their neighbors, the Miyanmin and they said that the fact that the Miyanmin treat human flesh as food is a sure sign that they are savages."

There are no eyewitness accounts of Miyanmin cannibalism, but there is the next best thing. George Morren, an anthropologist at Rutgers Univer-

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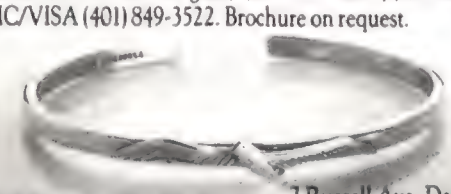

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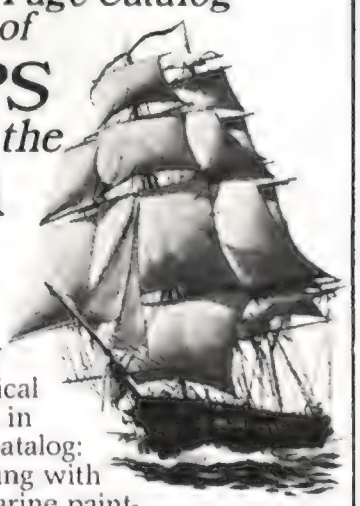

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sity who lived with the group in 1968-69, and again in 1980-81, has persuasive indirect evidence that they ate human flesh. According to the Bimin-Kuskusmin and other neighboring tribes, the Miyanmin raided their neighbors and left behind carcasses of people that they killed and, presumably, ate.

During his first visit Morren was interested in the history of warfare among the Miyanmin, so he interviewed tribe members and took down detailed accounts of battles and campaigns. When he interviewed the tribesmen, Morren says, the men told him the entire tribe had been cannibals in the recent past. The accounts were consistent and, says Morren, "some material was particularly detailed and it was possible to cross-check. Some people were witnesses to things that other people did."

In addition, Morren read court records of a trial in 1959 involving more than 30 Miyanmin who were accused of murder in connection with a raid on a neighboring tribe. Sixteen people were killed and eaten. "In pretrial investigations, the accused were very open in saying what they did. They did not know that what they had done was wrong and they didn't believe it was wrong. So they did not know what to censor in their accounts," Morren explains. The Miyanmin told Morren that the flesh of their neighbors was "just meat."

Morren did not directly observe cannibalism because the area was officially pacified when he visited it and the people no longer fought. (A section of Miyanmin territory that was not pacified by the Australian authorities was restricted and Morren was not allowed to go there.) In the area that he went to, Morren says, the "Miyanmin already knew that Westerners disapproved of cannibalism." They implied that these are old ways and that they were joining the modern world in which people don't eat each other.

A number of anthropologists and medical researchers say that, if nothing else, the story of kuru is good evidence of cannibalism in New Guinea. But others dispute it. Kuru is a disease that, from 1957 until 1977, was epidemic among the Fore, a tribe that lived in New Guinea highlands and that was, many believe, transmitted by eating human flesh. The Fore thought that the disease was caused by sorcery. It was rapidly killing them—particularly the women and children of the tribe—by destroying their brains and their ability to move. The word *kuru* means trembling and describes the first symptoms of the disease. Most victims died within a year.

The mystery of kuru fascinated Daniel Carleton Gajdusek of the National Institutes of Health, who later won a Nobel Prize for his work on the disease. It turned out that kuru is caused by a strange organism called a slow virus, and that people can only catch the disease by directly contacting the infected brains of kuru victims. The question is, how did the Fore contact these brains? Gajdusek

Margaret Mead called New Guinea tribe cannibals, but it was hearsay.

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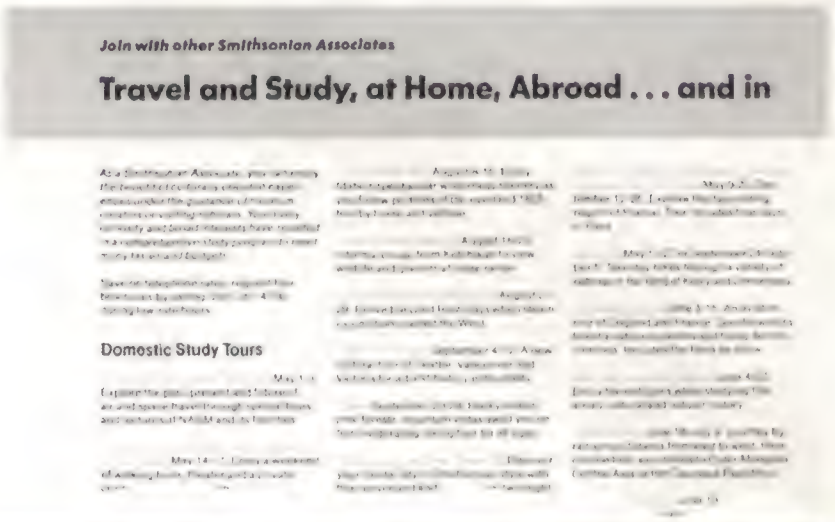
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Dr. D. C. Gajdusek (far left) won Nobel Prize in 1976 for work in New Guinea on kuru, linking disease to cannibalism. Above, native healer (in hat) draws blood in an attempt to cure a victim of kuru.

says it was in the course of funerary rites which involved cannibalism, and published a photograph in *Science* magazine that was widely cited as proving his point.

The *Science* photograph is of a woman who died from kuru and, just below it, is another photograph of some Fore sitting around a campfire eating meat. The caption tells how the Fore prepare and eat human flesh. It says, "All cooking, including that of human flesh from diseased kinsmen, was done in pits with steam made by pouring water over the hot stones, or the flesh was cooked in bamboo cylinders in the hot ashes. Children participated in both the butchery and the handling of the cooked meat, rubbing their soiled hands in their armpits or hair, and elsewhere on their bodies. They rarely or never washed. Infection with the kuru virus was most probably through the cuts and abrasions of the skin, or from nose picking, eye rubbing, or mucosal injury." Most people who saw the pictures and read the caption assumed they were viewing a photograph of cannibalism in action.

Not so, says Gajdusek. He explains that anyone should know that that could not be a picture of cannibals because there are men eating meat and only the women were cannibals. Actually, he says, it is a picture of a pig feast.

Gajdusek disagrees with those who question New Guinea cannibalism and the cannibalism of the Fore in particular. "The whole of Australia from the prime minister on down knows these people are cannibals," he says. "The old people tell of cooking and eating their relatives—they give a complete list of who ate whom and when."

Gajdusek refuses to enter into the cannibalism debate or to show the photographs he has taken of cannibalism to those who doubt the Fore ate human flesh. "The people who know of it [the cannibalism] have not deigned to get into the argument. It's beneath our dignity," he remarks.

Lyle Steadman, however, who has worked with the Hewa people in New Guinea, not only questions Gajdusek's statements that cannibalism is well documented in general in New Guinea but also does not believe that it had anything to do with the trans-

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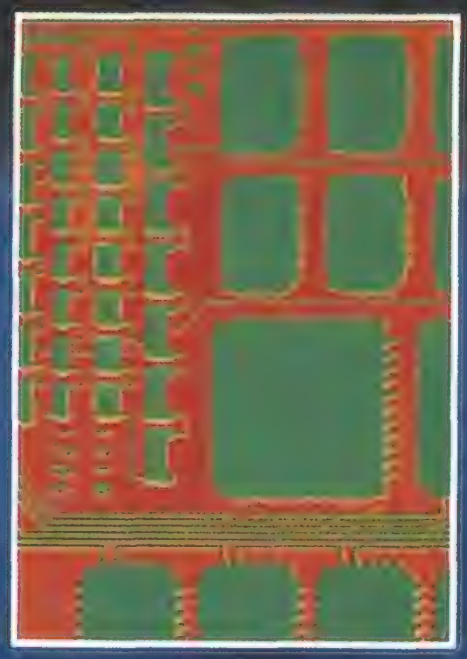

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As European cannibals, these Grecian pirates dismember victim for a feast.

mission of kuru. According to Steadman, "cannibalism is irrelevant to the transmission of kuru." New Guinea natives engage in mortuary rites that could easily allow women and children—but not men—to come in contact with the kuru slow viruses. "Skull handling and the handling of corpses is prevalent," Steadman says. Because the women often handle the skulls, and since the women and children are together, the kuru virus could be transmitted from their hands to the children. It has been suggested, says Steadman, that it is extremely unlikely that you can get kuru by eating the virus—slow viruses are most likely transmitted through mucous membranes by touching them to the eyes, nose or mouth. So cannibalism is not necessary to explain the transmission of kuru. In fact, it would only be indirectly, by touching the brain before they would have eaten it, that the women and children would get kuru.

In addition, says Steadman, "there is no evidence of conventional cannibalism in New Guinea." He does not deny that New Guinea natives often say that other members of other tribes are cannibals, or that they themselves once were cannibals or that some members still are cannibals. But he likens it to the witch hunts in Europe. "People were killed for being witches, and at the trials a lot of women said they were witches and that they ate human babies. That

does not mean that they did. The tribe that I lived with told me that some of their members were cannibals, but only after I spent time there and really probed did I learn that they were not."

Finally, there is the argument that even if people aren't cannibals now, they were in prehistoric times, before they may have developed taboos against eating human flesh. It is a difficult argument to make, notes Eric Trinkaus, because you have to show, first, that the bones you find really were part of cannibalism and, second, that you are not looking at an isolated occurrence of survival cannibalism but instead are dealing with a cannibal society. "Most of the damage attributed to cannibalism is just a result of the way fossils break when they roll in riverbeds or when they are damaged by carnivores," Trinkaus argues.

To illustrate the difficulty in interpreting the historical record, Trinkaus tells of a Neanderthal skeleton he studied. "The man had an injured rib—he was struck in the rib—and he died one to three weeks later, probably from a collapsed lung. Here was a clear-cut case. The man was stabbed and he died of the consequences. Another archaeologist then claimed it was the earliest case of human-to-human violence. But it could have been anything—murder, an argument or an accident in which someone stabbed him or an accident in which he stabbed himself. This is the only clear case we have of someone dying violently in the whole Paleolithic era and this is the kind of problem we always have in interpreting the prehistoric record."

Recently, however, an international team of researchers, led by Paola Villa of the University of Colorado, reported that they have evidence of cannibalism among Stone Age people who lived in southeastern France 6,000 years ago. They found a pit in Fontbrégoua Cave containing the bones of six people and they noticed

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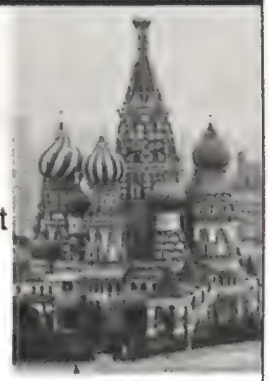

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that the bones had distinctive cut marks on them. When Pat Shipman of Johns Hopkins University examined the cut marks (below), she agreed that the most plausible explanation for them was cannibalism. The human carcasses had been stripped of their meat in the same way that animals' carcasses were stripped. "From the evidence we have, it looks like there wasn't any mental distinction between people and animals," says Shipman. "If that was true—and it's a big if—it says something very interesting. These were people. They were Homo sapiens. They had domestic animals and they made pots. Many tribal people have as words for themselves 'humans,' and for all others, 'non-humans.' " What may have happened, according to Shipman, is that these Stone Age people did not distinguish between those outside their tribe and animals when they sought meat. "It's the ultimate sort of 'us' and 'them,' " Shipman says.

But others remain to be convinced. It is a big step and unjustified, says Trinkaus, to conclude from the remains of six people, who may have been eaten by other humans, that these Stone Age people were a cannibal society. "I would not be surprised if there were survival cannibalism in the Stone Age, but I have not run across any evidence of ritualistic cannibalism," he says. Moreover, it is almost certainly impossible to obtain evidence of ritualistic cannibalism in prehistoric times because we have so few bones to examine. The cannibalism hypothesis "is untestable," Trinkaus argues.

But the current interest in cannibalism among our most distant ancestors may nonetheless be telling us something about ourselves, Trinkaus proposes. In the first half of the 20th century, archaeologists either ignored the cannibalism hypothesis as an explanation for cut marks on human fossils or dismissed it. Then, "starting in the early 1950s, suddenly it was accepted. I think it was the horrors of World War II. The atrocities very much changed people's perceptions of how nasty we are as a species and we projected that back on early history," Trinkaus says. The point is that we will never be able to prove that prehistoric people were or were not cannibals—so the way we interpret the data we have tells us more about us than about them.

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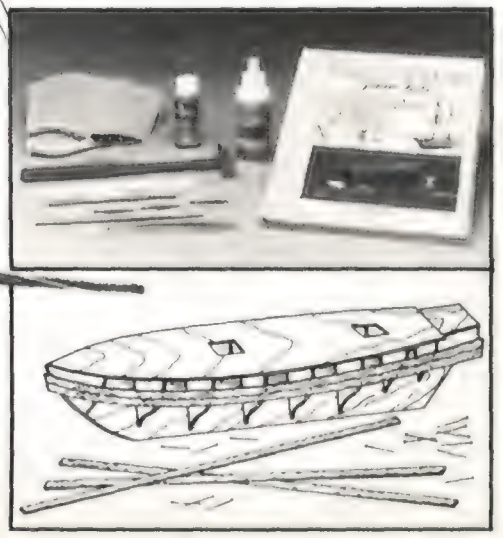

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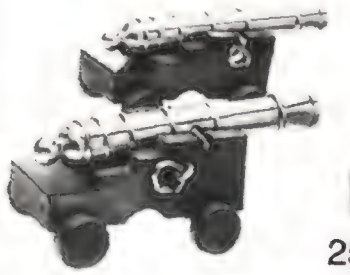

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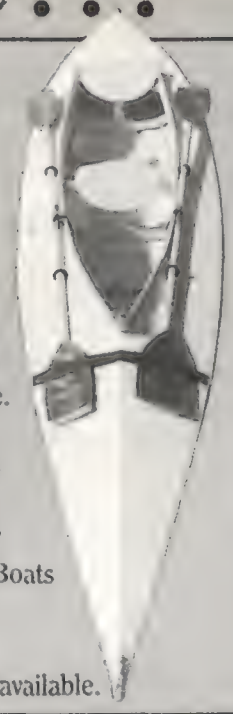

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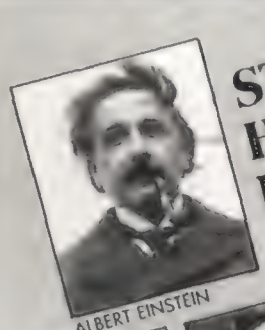
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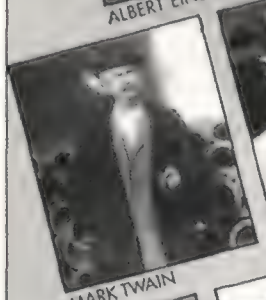
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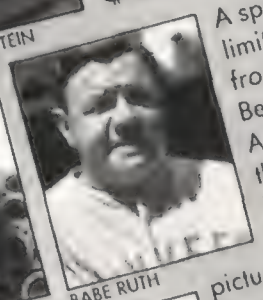
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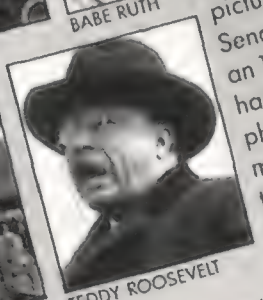
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# *Book reviews*

*The Moronic Inferno: And Other Visits to America*
Martin Amis
Viking, $16.95

Yes, he is Kingsley's son. And yes, he is a good writer, more than making it on his own. But no, he doesn't write like father.

This is a collection of journalism—pieces written to order for newspapers and magazines, mainly British. It is journalism of a high order in a field that ranges from the casual and unknowing debasement of the language, all the way (but rarely) to literature—witness Dr. Samuel Johnson earning his daily bread.

Amis, Martin, has for some years roamed around the United States, enjoying himself very much thank you, seeing the sights, including the unsightly ones, and interviewing people in whom other people are interested (often enough for good reason), writers mainly.

He looks, too, at some aspects of what is known as popular culture. The writers include Saul Bellow, with whom he begins and ends the collection, and for whom he has great admiration and respect; Norman Mailer, for whom you feel somewhat sorry when he is through; Gore Vidal, adroitly and acutely disposed of (no easy job this); Truman Capote. There are similarly exact, judicious and penetrating pieces on Philip Roth, Elvis Presley, Diana Trilling, Joseph Heller, Kurt Vonnegut, John Updike, Joan Didion, Paul Theroux and Hugh Hefner. Also treated are Gay Talese ("Sex-Affirmative") and some others.

Even antichauvinists will be put off by the title but will take in the subtitle and note that Amis points out in his introduction: "Needless to say, the moronic inferno is not a peculiarly American condition. It is global and perhaps eternal. It is also of course, primarily a metaphor, a metaphor for human infamy: mass, gross, ever-distracting human infamy." In fact, he tells us, he even feels fractionally American, having lived here as a boy with his mother, being married to an American woman and so fathering a half-American son.

Amis seems to have a feeling for America which is less condemnatory than that entertained by Gore Vidal, to give an example. He can't manage to read Vidal's novels. At least one other non-reader of Vidal's novels agrees with him. He has a sound respect for Vidalian excellence in the essay form and here he seems to have it exactly right. Ditto his assessment of the coldness and viperishness of Vidal's outlook on the world and those who inhabit it (Vidal's greeting to Amis when he appeared for an interview: "Oh, to be in England, now that England's here").

In the end, even so, it is Amis who has his way with Vidal, as witness: "Novelist, essayist, dramatist, epigrammatist, television polemicist, controversialist, pansexualist, socialist and socialite: if there is a key to Gore Vidal's public character, it has something to do with his towering immodesty, the enjoyable superbity of his self-love. No, this is not infatuation; this is the real thing . . . perhaps love is blind after all. Indeed, Vidal's paraded auto-crush has a way of summoning the most wistful refrains. It is a love whose month is ever May. Here is a man, you feel, who would walk a thousand miles for one of Gore's smiles."

Of course, this is the sort of thing Vidal himself might have written. It is that good. But there is much more to Amis in his comprehension, his facility with the language. The point about these essays is their intelligence, spaciousness of sensitivity and knowledge of the subject.

In certain literary circles in London where the temperature is so often feverish, Amis is "that little s---." Which means he is very good at bringing overheated reputations down to normal.

Already the author of several volumes (he is 36), at least one considerable novel and some outstanding short stories, he might, given an apparent moral outlook which his father seems to lack in his work, turn out to be a very major literary figure, too.

*Bennett Schiff*
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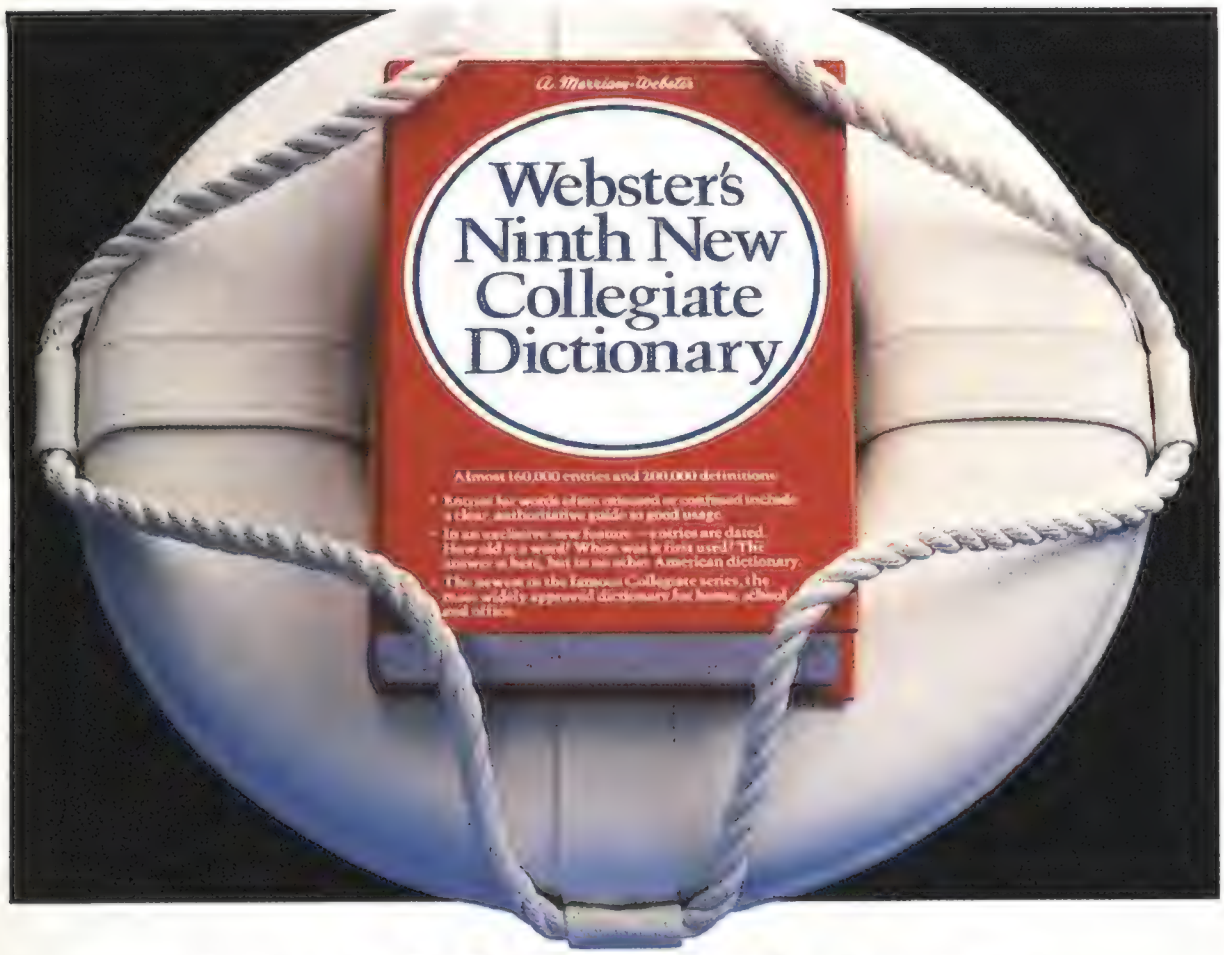


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*VN: The Life and Art of Vladimir Nabokov*
Andrew Field
Crown, $19.95

A good biography must always balance truth and design. The dates need to be correct, the names spelled right, the facts dutifully set down, but none of this diligence will matter if the writer forgets to tell a good story or fails to give his narrative shape and beauty. In dealing with a novelist or poet, the biographer also needs to understand and sympathize with his subject's work.

By these criteria, *VN: The Life and Art of Vladimir Nabokov* is a reasonably good but not quite ideal biography of the great Russian-American novelist. Andrew Field deftly presents the Nabokov data—born in St. Petersburg in 1899, educated at Cambridge University, literary career under the name V. Sirin in Berlin and Paris, emigration to the United States where he taught at Wellesley and Cornell, retirement to the Montreux Palace Hotel in Switzerland. All very well and told in rattling good fashion—especially the early years in Europe. But then Field turns around to claim, on the slenderest evidence, that Nabokov used to call his own mother Lolita; hints that the writer blasted *Doctor Zhivago* only because it toppled *Lolita* from the peak of the best-seller list; and suggests that Nabokov died in 1977 of cancer, not from the reported complications of a flu infection. Idle speculation, all of it.

As a life story, the biography generally reads briskly, but is marred by sloppy syntax and irrelevant psychologizing. At one point, for example, Field can write that young Nabokov, enamored of a girl named Valentina, took to "biting her neck as they kissed passionately." A good trick. He also claims that Nabokov was a narcissist, which supposedly explains why the novelist could be happy wherever he lived, no matter how desperate his finances, how uncertain his prospects. All that one can say is: maybe yes, maybe no. Field's critical remarks also vary wildly: *The Gift*, he claims, is perhaps the greatest Russian novel of the century (Nabokov himself chose Biely's *St. Petersburg*), *Ada* probably Nabokov's worst book (though many other scholars view it as his flawed magnum opus).

Happily, these faults, though real, never impair the great strength of *VN*—its remarkable fullness. Field has drawn on his two previous books—the critical study *Nabokov: His Life in Art* and the eccentric *Nabokov: His Life in Part*—and

kept the best of both. For the time being his biography has no serious rival, and fans of this great writer will want to, will have to, read it. After all, the anecdotes alone more than make up for its occasional misjudgments.

A Nabokov ancestor commanded the Peter and Paul fortress when Dostoevsky was imprisoned there. Vladimir suffered all his life from neuralgia, headaches, heart palpitations and dental trouble. As a young man, he was a first-class soccer goalie and tennis player. When poor in Berlin, he would "read whole books little by little in bookshops." In his sole meeting with James Joyce, the Irishman asked him about the "history of mead in Russia." When Nabokov arrived in New York, he was offered a job as a "bicycle delivery boy for Scribner's bookstore." Much of *Lolita* was composed, appropriately enough, in the backseat of a Buick while he was on a holiday out West. As a part-time lepidopterist, Nabokov specialized in butterfly genitalia. One lovely set piece describes Russian émigré writers drunkenly shouting and weeping over art; in another, Nabokov suspects critic Edmund

Vladimir Nabokov: a "self-caricature . . . a Quixote who built his own windmills."

Wilson of having cut out the bottom of his butterfly net with a pair of nail scissors because of arguments over Russian prosody; in another, Nabokov announces during a Russian grammar lesson, "Now we come to the saddest story ever told: 'She is here. He is there.'"

The most immediate effect of literary biography should be to send readers back to a writer's works with fuller understanding. His lapses aside, Field succeeds in this admirably, not only for the established classics such as *Pnin* but also for the relatively neglected *Invitation to a Beheading* and that absolute charmer, *The Real Life of Sebastian Knight.*

*Michael Dirda*
An editor at *Washington Post Book World*

*Deadly Encounters:*
*Two Victorian Sensations*
Richard D. Altick
University of Pennsylvania Press,
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While they ate their breakfasts on Saturday, July 13, 1861, Londoners read two fascinating items in the *Times.* One reported THE CHARGE AGAINST THE BARON DE VIDIL. The other, in the very next column, recounted in breathless and horrified detail a FRIGHTFUL ENCOUNTER IN NORTHUMBERLAND-STREET. From that beginning, Richard D. Altick, an authority on Victorian literature and taste, dates the growth of a "public appetite for the improbable and perilous" that gave rise to


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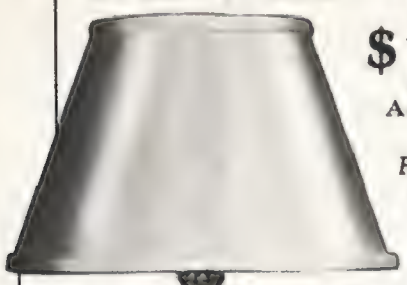

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an Age of Sensation in both newspaper reportage and literature. In *Deadly Encounters*, he thoroughly details the two cases as covered and commented on in the London press and draws some interesting conclusions.

The Baron de Vidil was a French nobleman, an intimate of London clubmen and on friendly terms with the French royal family living in England. One afternoon in a wooded Twickenham lane near London, the Baron, it was alleged, struck with intent to kill his own son. The son brought charges and then, as an avid public followed the case from Magistrate's Court in Bow Street to the Old Bailey, refused to testify against his father, hinting at some still darker secret. The public read on eagerly as a mysterious inheritance and motivations of greed came to light, and the whole case raised questions of class and the place of foreigners in English society.

In the other case, a Major Murray was assaulted and fired upon with a pistol in the rooms of a Mr. Roberts, a small-time moneylender in Northumberland Street, near the Strand. From the appearance of the rooms and the wounds of both—Roberts' injuries soon proved fatal—the encounter was indeed "frightful." The press had a field day. The *Times* called it "a contest where strong and angry men struggle to tear and beat each other down with whatever weapon they can seize in their frenzy. The *Daily Telegraph* called it a *"horrible slaughter-house mystery"* and opined that there was a woman at the bottom of it. And there was. The

The "woman at the bottom of it": Anne Marie Moody, about 25 or 26.

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Major's illicit romance with a young woman named Anne Marie Moody came to light and the existence of her child was revealed, together with a tale of her borrowing money from Roberts and of his frustrated passion for her and consequent jealousy of Major Murray. The horrified public watched it all unfold in a "spirit of morbid wonder."

Altick quotes extensively from press accounts, and his book is a treasury of overheated prose and outraged Victorian morality. Much of the underlying interest in the Murray case centers on the uncertain and dependent position of women, but the two cases together bring to light the fears beneath the surface of an apparently secure society. Violent criminal cases such as these, Altick makes clear, drove home to mid-Victorian society that "beneath their feet were dangerous unplumbed depths, uncontrollable forces that constantly threatened the peace and stability of their social system. In a direct, stark confrontation, middle-class respectability evidently was no match for remorseless passion. . . ."

Less certain, however, is Altick's thesis that these two cases of 1861, and the press coverage of them, brought about an Age of Sensation. Charles Dickens and Wilkie Collins were already being read at that time, and the hugely popular and horrific *Varney the Vampyre*, which Altick doesn't mention at all, had been published in penny parts from 1847 to 1849 and was several times both reprinted and acted on the stage. In real life, the Constance Kent case, an especially gruesome and shocking tale of murder, which Altick mentions only once and briefly, had captured the public fancy a year or so earlier.

Even so, Altick's book vividly preserves an important and fascinating element of daily Victorian life. As such, it is the best sort of historical scholarship: the kind that puts us in close touch with a lost world and with people very much like ourselves.

*Alan Ryan*
New York novelist and travel writer

*Letters from Westerbork*
Etty Hillesum
Translated by Arnold J. Pomerans
Introduction by Jan G. Gaarlandt
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"Am I a dreamer?" Etty Hillesum wrote to a friend eight months before she would die in Auschwitz. "Oh please let


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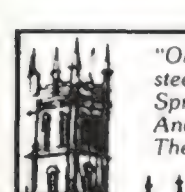

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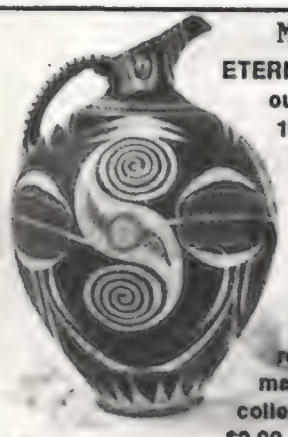

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me be, there have to be people like me, too. My realities may be different from what most people call reality, but still they *are* realities."

For most people, life in Westerbork, a transit camp for Dutch Jews on their way to extermination in Poland, was an unremittingly grim reality. Most lived in drafty barracks, sleeping on triple-decker metal cots, ill, hungry, humiliated, frightened. Children, separated from their parents, sometimes were ignored by other weary adults. Young people became despondent, even suicidal. Old people, Hillesum observed, often managed quiet resignation.

Cattle cars, each sparsely equipped with a few thin mattresses and a bucket, came weekly. Thousands of Jews were herded in for the three-day trip to Poland. They were never heard from again. "A hundred thousand Dutch members of our race are toiling away under an unknown sky or lie rotting in some unknown soil. We know nothing of their fate," Hillesum wrote just weeks before she and her family were taken away. Yet for her, the experience of oppression, degradation and death offered some hope. "These days many people think: life is coming to an end, this is a great eclipse. Perhaps much later it will be seen as a new beginning as well."

Hillesum began at Westerbork as a volunteer, a member of one of the Jewish Councils set up throughout Europe to placate the Jewish community. As a "social worker" at the camp, she could travel to Amsterdam, procure medical supplies and serve as messenger between inmates and their families. Soon she, too, became an inmate.

These letters testify to a spirit that drew its strength not from the external world but from an inner conviction that life is, in essence, a joyous miracle. "You're the sort of person who makes something of her life in any circumstances," a barber told her. Not only could she see the beautiful (a rainbow arching over the camp, for example) that others might ignore, but she listened to life, waiting for signs of happiness. Like Paula Modersohn-Becker, the German painter whose biography interested her, Etty had at once that "instinctive perception of one's own riches, and a secret, not entirely explicable, inner happiness" that sustained her.

She writes with irony and even humor. For example, describing the camp's new commandant, she noticed that he


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Etty Hillesum in 1941; she believed the "world is beautiful all over."

had "some strange ideas" regarding his role. Deciding that his prisoners needed a change of diet, he once had them served marrowfat peas instead of their customary cabbage. He patronized their cabaret nights, visibly enjoying the acts. He formed a male choir and he entertained performers at his own home. He was said to love children. "Perhaps he sees himself as a prince dispensing largesse to his many humble subjects," she suggested, unimpressed.

It took more than 40 years—and the critical success of Hillesum's diary, *An Interrupted Life*—for these letters to be published. Now they take their place among the finest testimonies to emerge from the "great eclipse": the clear, vibrant voice of a young woman who realized that she was witnessing a moment of profound suffering, yet who denied suffering for herself.

Westerbork, for its inmates, offered a desolate landscape, but Hillesum preferred to look up at an ever-changing sunset. "I believe the world is beautiful all over," she wrote, "even the places that geography books describe as barren and dull. Most books are no good, really; we shall have to rewrite them all. . . ." *Letters from Westerbork* is her own contribution to that revision, teaching us about the experience of suffering and about the capacity of a loving spirit to survive.

*Linda Simon*

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# *Additional reading*

**Japanese education** (p. 44)


*Japanese Education Today: A Report from the U.S. Study of Education in Japan*, U.S. Department of Education, 1987

*The Japanese Educational Challenge: A Commitment to Children* by Merry White, Free Press, 1987

*Child Development and Education in Japan* by Harold Stevenson, H. Azuma and K. Hakuta, W. H. Freeman, 1986

*A Half Step Behind: Japanese Women of the '80s* by Jane Condon, Dodd, Mead, 1985


**Costa Rican deforestation** (p. 56)


"Costa Rica—test case for the neotropics" by Laura Tangley, *BioScience*, May 1986

"Despair and Hope in Manzanillo" by Val Barzetti, *Not Man Apart*, January-February 1986

*Costa Rica: Nature, Prosperity and Peace on the Rich Coast* by Allen M. Young, Interamerican Research Corporation (Milwaukee), 1984

"Rainforests and the Hamburger Society" by James D. Nations and Daniel I. Komer, *Environment*, April 1983


**Old-time radio** (p. 70)


*Tune in Yesterday: the Ultimate Encyclopedia of Old-Time Radio 1925-1976* by John Dunning, Prentice-Hall, 1976

*The Big Broadcast* by Frank Buxton and Bill Owens, Viking, 1972

*A History of Broadcasting in the United States* by Erik Barnouw, Oxford, 1966 and 1968

*Radiogram* (SPERDVAC newsletter), P.O. Box 1587, Hollywood, California 90078

**Musée d'Orsay** (p. 82)

"Out of a Grand Ruin, a Great Museum" by Robert Hughes, *Time*, December 8, 1986

"Encyclopedic Museum: Reviewing the Orsay" by John Russell, *New York Times*, December 4, 1986

"Musée d'Orsay: Stunning Arrival in Paris" by Michael Dobbs, *Washington Post*, December 2, 1986

**Spadefoot toads** (p. 98)

"Larval Community Structure in Four Species of Non-Riparian Sonoran Desert Anurans" by Dennis Oscar Cornejo (M.S. thesis), University of Arizona, 1985

*Gnomes of the Night, The Spadefoot Toads* by Arthur N. Bragg, University of Pennsylvania Press, 1965

**Camel drive** (p. 120)

*The Kababish Arabs: Power, Authority and Consent in a Nomadic Tribe* by Talal Asad, Praeger, 1970

*In Search of the Forty Days Road* by Michael Asher, Longman (Harlow, Essex), 1984

*A Desert Dies* by Michael Asher, Viking (London), 1986

**Air rescue** (p. 136)

"Satellite Search" by Mark R. Twombly, *AOPA Pilot*, January 1987

*Satellite Aided Search and Rescue: experimental results and operational prospects*, Cepadues-Editions (Toulouse, France), 1984

"That Other Two Percent" by Bill Vargas and Bob Cowan, *RESPONSE!—The Magazine of Search, Rescue and Recovery*, July/August 1986

*Aerospace Rescue and Recovery Service 1946-1981: An Illustrated Chronology* by Donald D. Little, Military Airlift Command (Scott Air Force Base, Illinois), 1983

**Cannibalism** (p. 150)

"Three Cheers for Hans Staden: The Case for Brazilian Cannibalism" by Donald W. Forsyth, *Ethnohistory*, Vol. 32, No. 1, 1985

"Kuru and Cannibalism" by Lyle B. Steadman and Charles F. Merbs, *American Anthropologist*, September 1982

*The Ethnography of Cannibalism*, edited by Paula Brown and Donald Tuzin, Society for Psychological Anthropology (Washington, D.C.), 1983

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# *Smithsonian highlights*

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**Special March exhibits and events**

**Hirshhorn Museum & Sculpture Garden**
*Bridging the Century: Images of Bridges from the HM&SG* (March 11-May 24) Forty works trace the use of the bridge in modern art.

**National Museum of American Art**
*Gene Davis, A Memorial Exhibition* (through May 17).

**National Museum of American History**
*Field to Factory: Afro-American Migration, 1915-1940* (through February 1988) Photographs and documents, a tenant farmhouse, plows and other tools.

**Cooper-Hewitt Museum** (New York)
*The Catalan Spirit: Gaudí and His Contemporaries* (through June 9) Includes 75 objects and 75 works on paper.

**National Portrait Gallery**
*Man of the Year: Portraits from the* Time *Collection* (through July 1988) See *Highlights continued.*
*Recent Acquisitions* (through August 9) Paintings, sculptures, prints, photographs.

**National Museum of Natural History**
*The Making of a Dinosaur* (runs indefinitely) In public view, technicians remove Coelophysis remains from a block.
*Robert Bateman, In Person* (March 20, noon, Baird Auditorium) Lecture.

**National Air and Space Museum**
*Extragalactic Violence: Quasars in the Distant Universe* (March 18, 7:30 P.M.) Lecture by Bruce Margon.
*Night Bombing Raids Over Europe* (March 19, 7:30 P.M.) Lecture by Air Vice Marshall Ron Dick, RAF (Ret.).

**Renwick Gallery**
*Quilts from the Indiana Amish* (March 6-June 7) Twenty quilts created between 1875 and 1940.

**Other March events**

**Musical Weekend**

Highlights of the 15th Musical Weekend, May 1-3, will include the Smithsonian Chamber Players in a private concert using authentic period instruments; the National Symphony Orchestra playing Mozart, Strauss and French and Italian arias; dinners in the Arts and Industries Building and the Renwick Gallery; tea and music at the Turkish Embassy and a champagne breakfast in the Bird House of the National Zoo. For further information, write: Musical Weekend, Room 4124 NMAH, Smithsonian Institution, Washington, D.C. 20560.

**Resident Associate Program**

To become a Resident Associate, or for fee and ticket information, call 357-3030. Here are some March events:
*Joyce Lindorff, Harpsichordist* (March 15; 7 P.M.) Pro Musicis concert.
*A Master Class with Wildlife Artist Robert Bateman* (March 22) All-day class.
*Come Fly a Kite!* (March 28; rain date, March 29) Annual kite festival.
*Van Gogh: The Years at St. Remy and Auvers* (March 30, 6 P.M.) Lecture by Meredith Johnson.

**Exhibition catalogs**

Catalogs available at this time include:
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Antonio Gaudí's student project for a university assembly hall is among works on display in Cooper-Hewitt show.

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Atlanta and three California locations will host Smithsonian events in March. The program in Atlanta, March 3-9, will feature lectures on tropical rain forests and American fashion, a seminar on American art and a jazz piano concert. Marin and Sonoma counties, California, will also host Smithsonian events, March 18-23, featuring lectures on horticulture and aviation, a photography seminar and a special showing of Smithsonian films. In Los Angeles, March 25-29, the program will feature lectures on expressionist painting and electron microscopy, a seminar on filmmaking and a performance of Afro-American songs.

**Smithsonian on the air**

*Radio Smithsonian*: A salute to the National Portrait Gallery and to "The Singing Brakeman" (Jimmie Rodgers).
*Smithsonian Galaxy*: short radio features.
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Anchorage, Alaska (March 14-April 26) *New Vistas: American Art Pottery 1880-1930, from the Cooper-Hewitt Museum*, Anchorage Museum of History and Art.
Aurora, Illinois (March 7-April 5) *Mexico As Seen By Her Children*, Aurora Civic Center Authority.
Durham, North Carolina (March 14-April 12) *Remaking America: New Uses, Old Places*, Duke University.


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# Covering *Time*'s men of the year

It's often funny to hear how a long-accepted journalistic tradition was first established. We tend to think that it was all thought out by the originators, who knew a brilliant idea when they saw it. But in fact an enduring tradition is frequently stumbled upon because at the moment there's nothing better to do—and for some reason, it turns out to be just the right move.

So it was with the first *Time* Man of the Year cover at the end of 1927. Lacking any gripping news for the first issue of 1928, *Time* editors decided to feature Charles A. Lindbergh, who had flown from New York to Paris the previous May, as their "man of the year." The story was old but the slant was new, and readers loved it.

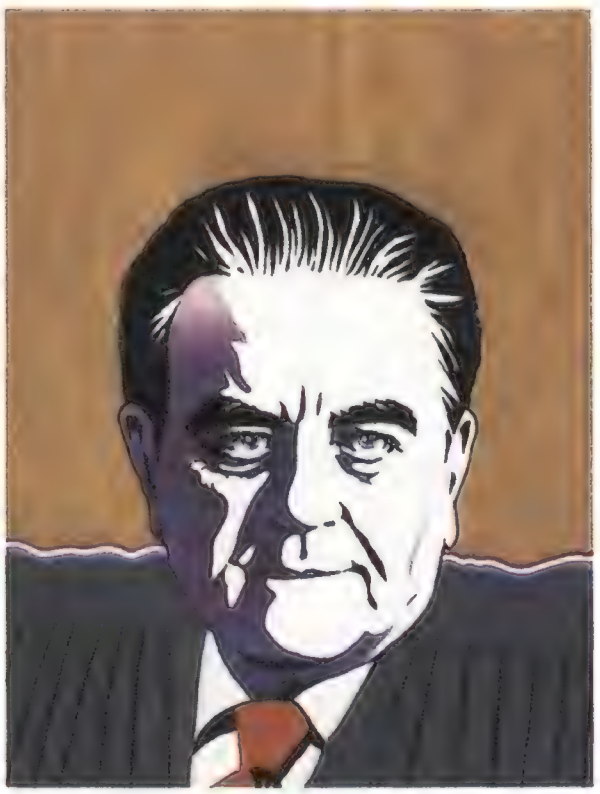
Frederick S. Voss, historian at the National Portrait Gallery, has organized 25 covers, beginning with "Lucky Lindy," into an exhibition that runs through July 1988. A walk through the exhibit reminds us that not only the magazine's choice of newsmaker but even the selection of the artist to portray him often was a controversial story.
*Constance Bond*

For 1958 cover, Bernard Buffet painted de Gaulle with his "solemn hauteur."

Robert Vickrey showed Martin Luther King jr. casting long shadow in 1963.

Ike was Man of the Year in 1959 for his tours to improve global relations.

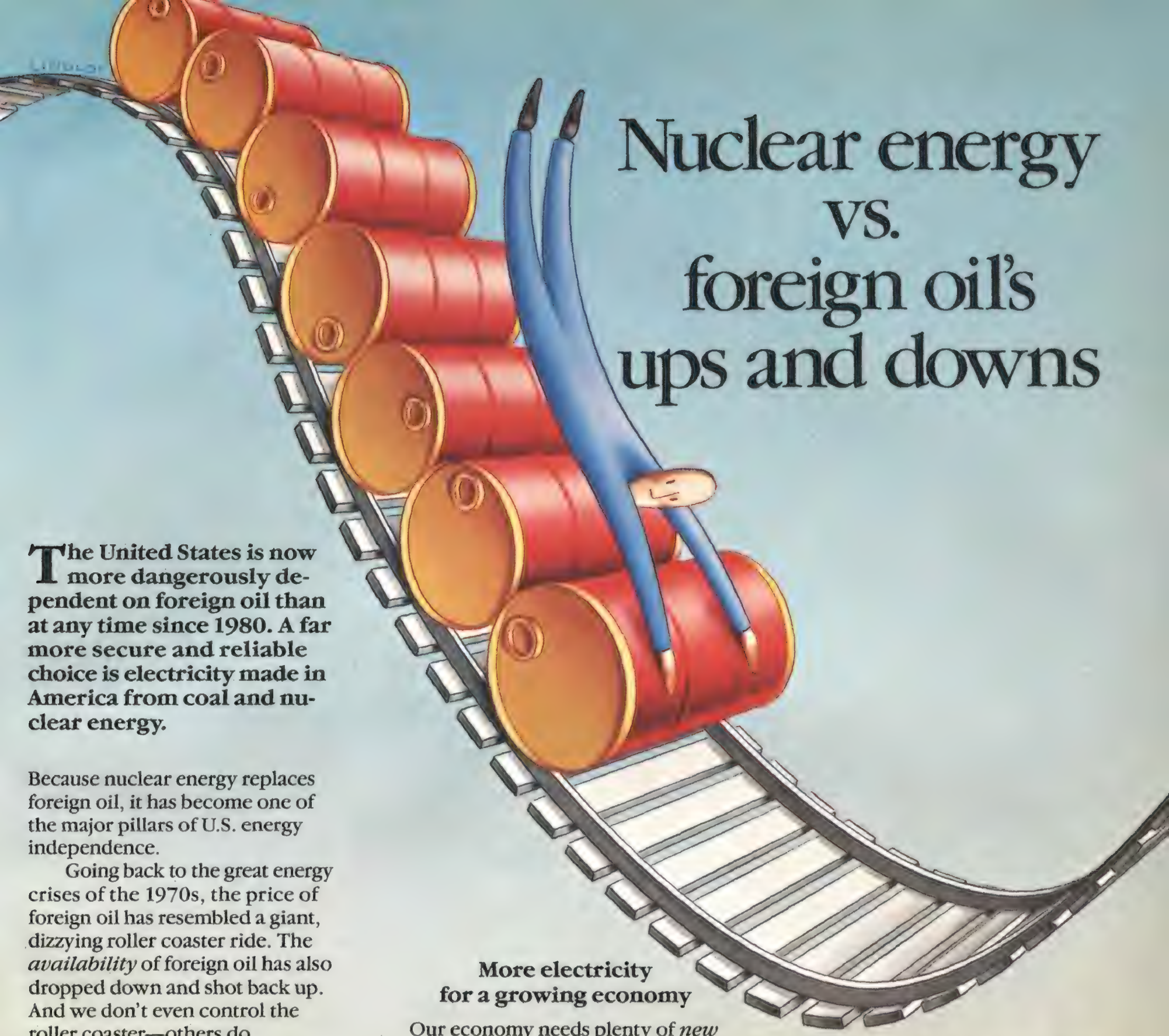
In 1957, Khrushchev wore Kremlin crown, admired his image in Sputnik.



In 1973, Judge John Sirica took cover; the previous year it was Richard Nixon.

Many *Time* readers disliked disheveled Kennedy portrait by Pietro Annigoni.

# Nuclear energy vs. foreign oil's ups and downs



**The United States is now more dangerously dependent on foreign oil than at any time since 1980. A far more secure and reliable choice is electricity made in America from coal and nuclear energy.**

Because nuclear energy replaces foreign oil, it has become one of the major pillars of U.S. energy independence.

Going back to the great energy crises of the 1970s, the price of foreign oil has resembled a giant, dizzying roller coaster ride. The *availability* of foreign oil has also dropped down and shot back up. And we don't even control the roller coaster—others do.

Consider this ominous statistic: even though prices were low in 1986, America still had to pay about $30 billion for foreign oil. That's a lot of dollars leaving this country, adding to an already huge trade deficit.

## Nuclear energy cuts oil imports

Clearly, the more energy we use in the form of electricity from coal and nuclear energy, the less oil we have to import.

Nuclear-generated electricity has already saved America over two billion barrels of oil, with billions more to be saved before the turn of the century. That's why it's so important for our energy self-reliance.

©USCEA, 1987.

## More electricity for a growing economy

Our economy needs plenty of *new* electrical energy to keep on growing. Almost all of that new energy is coming from coal and nuclear electric plants.

The truth is that nuclear energy is an everyday fact of life in the U.S. It's been generating electricity here for nearly 30 years. Throughout the country are more than 100 nuclear plants, and they are our second largest source of electric power. As our economy grows, we'll need more of those plants to avoid even more dependence on foreign oil.

## Safe energy for a secure future

Most important, nuclear energy is a safe, clean way to generate electricity. U.S. nuclear plants have a whole series of multiple backup safety systems to prevent accidents. Plus superthick containment buildings designed to protect the public even if something goes wrong. (It's a "Safety in Depth" system.)

The simple fact is this: America's energy independence depends in part on America's nuclear energy.

For more information, write the U.S. Committee for Energy Awareness, P.O. Box 1537 (RC7), Ridgely, MD 21681. Please allow 4-6 weeks for delivery.

Information about energy America can count on

U.S. COMMITTEE FOR ENERGY AWARENESS

# Travel and Study, at Home, Abroad . . . and in

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## Domestic Study Tours

**National Air and Space Weekend** May 1-3: Explore the past, present and future of air and space travel through special tours and lectures at NASM and its facilities.

**New York Architecture—From Cast-Iron to Post-Modern** May 14-17: Enjoy a weekend of walking tours, theater and a private cruise around Manhattan.

**New England and Hudson River Cruise** May 30-June 13: Aboard the *Newport Clipper*, sail from Boston to New York. Visit West Point, Nantucket and Newport, featuring an elegant dinner at the Vanderbilts' Marble House.

**Bryce, Zion and the North Rim of the Grand Canyon** June 4-14 and August 31-September 10: Hike canyon trails to admire foliage, wildlife and geological history.

**Chicago** June 17-21: Walking tours and special programs to study the city's stunning architectural legacies.

**Civil War—the Eastern Theater** June 18-28: Beginning in Washington, D.C., travel to Richmond, the Shenandoah Valley and Gettysburg to retrace the events of the war.

**Grand Canyon** July 3-13: View magnificent landscape while rafting down the Colorado River with expert boatmen.

**Sojourn Santa Fe** July 19-26: Settle in for a leisurely exploration of the area's pueblo villages and scenic sites.

**Alaska's Interior** August 6-17: Watch bears and caribou while hiking in Denali National Park; float down the Kenai River and meet Eskimo artists in Nome.

**Middle Fork** August 7-15: An unforgettable river trip on Idaho's Salmon River.

**Lewis & Clark Trail** August 8-15: Enjoy Idaho's spectacular wilderness scenery as you follow portions of the overland 1805 trail by horse and vehicle.

**Alaska's Inside Passage** August 18-25: Informal cruise from Ketchikan to view wildlife and glaciers at close range.

**Colorado Mining and Railroads** August 21-29: Relive the Gold Rush days when steam locomotion opened the West.

**Pacific Northwest** September 4-12: A new cultural tour of Seattle, Vancouver and Victoria for art and history enthusiasts.

**Maine** September 20-28: Rocky coasts, pine forests, mountain vistas await you on this invigorating hiking tour for all ages.

**Washington "Anytime" Weekend** Discover your capital city in Smithsonian style with this convenient and economical two-night package. Reserve by phone with your Visa or MasterCard. Be sure to visit the Matisse show, now through March 29.

## Foreign Study Tours

**Sail the Pacific—a Smithsonian First!** March 19-April 11: Sail aboard the tall ship *Sea Cloud* through the Panama Canal to the Galápagos and on to Easter Island.

**Guatemala Adventure** March 26-April 6: Explore distinct Maya civilizations from the highlands to the monumental cities of Tikal and Uaxactún in the Petén jungle.

**People's Republic of China** Nine unique itineraries beginning in April. Hike, travel by train, study decorative arts, visit Nepal and Tibet . . . tours for first-time and repeat China travelers.

**Wales** April 30-May 14: Residents offer you a very personal exploration of the unique Welsh landscape and culture with emphasis on literature and the arts.

**Countryside Programs** May to September: Explore scenic and historic areas in Hungary, England, Austria, France or Switzerland.

**Malaysia, Borneo and Singapore** May 9-27: Explore Kuala Lumpur, Malacca, Sarawak and more—for 19 days of color, culture and camaraderie.

**Shadows of the Past—Chateaus, Caves and Villages of the Dordogne** May 9-23, September 12-26: Explore this fascinating region of France. Tour includes four days in Paris.

**Irish Walk** May 15-27 or September 24-October 5: Take day hikes through a variety of settings in the Ring of Kerry and Connemara.

**Odyssey of Flight** June 3-15: An aviation tour of England and France. See the world's finest aviation museums and flying demonstrations. Includes the Paris air show.

**Wild Highlands of Scotland** June 4-22: Enjoy the outdoors while studying this area's cultural and natural history.

**Trans-Siberia** June 18-July 9: Journey by rail across Siberia from east to west, then choose from excursions to Outer Mongolia, Central Asia or the Caucasus Republics.

**Lake Country Hikes** June 19-July 3: Hike and explore this corner of England so beloved by writers and artists.

**Montreal/Quebec** July 7-18: Experience the charm and hospitality of France in the New World.

**Finnish Summer** July 11-26: Attend the Savonlinna Opera Festival, then explore southeastern Finland with its spectacular scenery, castles and museums.

**Scotland by Train** July 11-26: Travel by steam trains and coastal steamers from Edinburgh and Inverness to the wild highlands, mountain lochs, Skye and Glasgow.

**Iceland** July 25-August 9: An adventure tour that circles this austere, beautiful land. Study unique geology, see fascinating plant and bird life.

**Voyage to Northern Lands** August 15-29: Cruise aboard the *Illiria* from Iceland to Greenland and Newfoundland, then up the St. Lawrence River to Quebec and Montreal.

**Alpine Hike** August 16-30: A challenge for adventurous hikers through the majestic mountains and valleys of Switzerland.

**London and the English Countryside** August 30-September 13: Design your own nine-day London program, then enjoy five extra days on a countryside excursion.

**Write Smithsonian National Associates, 1100 Jefferson Drive, SW, Washington, DC 20560 or call (202) 357-4700 for tour brochures**

# Washington

## Smithsonian Seminars

Travel to North Carolina's splendid Blue Ridge Mountains, visit Wisconsin or spend an exciting week in Washington, D.C., as you enjoy stimulating seminars that focus on music, history, science and art.

**University of Wisconsin-Madison**
**May 28-31**

**Native Americans in U.S. History**
Trace the history of Anglo-Indian relations and visit the Oneida Nation Museum.

**BioDiversity**
Explore the diversity of the Earth's biological resources during lectures and tours.

**Exploration in Space**
Learn about future lunar and planetary missions and plans for the shuttles and space stations.

**Appalachian State University**
**June 22-26**

**Story, Lore and Song**
Experience Appalachia's rich folk culture in the company of scholars, local singers and storytellers.

**The Magical World of Minerals and Gems**
Learn how minerals and gems form, and collect your own samples during a day-long field trip in the Blue Ridge Mountains.

**Southeastern Indian Cultures**
Trace the history of this region's native Americans through lectures and a visit to an important archaeological site.

**Washington, D.C.**
**June 28-July 3**

**Photojournalism**
Smithsonian photographers and guest experts will introduce you to the fundamentals as you document life in the nation's capital.

**Garden Planning and Design**
Visit Washington's finest gardens and tour Longwood Gardens in Pennsylvania with Smithsonian horticulturist James Buckler.

**Sculpture in Washington, D.C.**
Enjoy masterpieces of sculpture at the Hirshhorn Museum, Museum of American Art and National Gallery of Art during lectures and tours by Smithsonian curators.

**or (202) 357-1350 for seminar brochures.**


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*By Richard Wolkomir*

# *Shapeful islands for a 'tied up' businessman*

"Guest Crossing. Drive Gently," said the sign beside the road and I knew then, riding the bus from Princess Juliana Airport to the hotel, that our week on St. Maarten would be a Caribbean education. A culture that advocates gentle driving has much to teach a nation that likes to "hit the road" and "burn up the highways." As the "Free Official Tourist Guidebook" noted, this is an island where the palms are "shadeful" and the piña coladas are served "chilly cold."

Guidebook in hand, we climbed the "shapeful green hillsides" and swam in the "powerful blue seas." We also visited "beaches next to where your favorite drink is mixed." At first, my buttoned-down Northern mind balked, but I soon began to *expect* a beach to abut any drink-mixing site.

Slowly I adjusted to the island's more sophisticated notion of space and time, and the hours began blissfully marching to a different bongo. Here a rental-car agent's telephoned "I'll deliver your car in 15 minutes" might mean two hours. Or it might mean a day and a half, depending on vagaries in the fabric of time such as an unexpected opportunity to chat with one's chums under a shadeful palm while sipping a chilly cold Coke. Or, en route, one might stop to observe a pelican diving into Simpson Bay Lagoon, so that quite unexpectedly lunchtime and the midday siesta are upon one and car delivery must be delayed.

Eventually, the visitor learns that the "real" world, where Boston is fixed so many degrees latitude and longitude north and west of Nairobi, is only one possibility in a Universe far more flexible and interesting. Gloria, for instance, who stopped by our cottage to offer shell and coral jewelry, said she would like to see New England's snow; in 40 years she had known only unending summer. "Yes, that I would like, except that on *your* island it is bothersome because of the lions," she said, leaving us fretful about our return to the Isle of Vermont, where who knew what tracks we might find in the snow by the front door.

Gloria did note that the local mongooses were "grumpy." But the guidebook said, "Some people want to relax, doing nothing but to feel the shooting comfort of that Caribbean sun, dripping into their skins." With the shooting comfort dripping, we didn't give grumpy mongooses a thought.

One evening we sat on the beach, pondering a guidebook passage: "A peaceful moment on a terrace overlooking a white palm-tree fringed beach that changes into azure blue crystal water with one or two shapeful islands on the horizon, will unnerve even those tied up businessmen who want to forget figures for a moment."

It might be me, I thought. Then I see the palm-fringed beach—presto!—transformed into azure blue crystal water, with shapeful islands materializing. Immediately I become unnerved.

But so many things on the island left me happily unnerved. Dinner, for example, might pop up in odd spots. On the islands, the guidebook said, the "great pleasures of the world's best cuisines are right at your feet."

Apparently one island sect's central rite is digestion. At least the guidebook noted that "people who think of dinner as something sacred and untouchable have landed on the correct island." A restaurant ad extolled the "well professionally presented 'a la carte menu,'" adding that "friendly bartenders will be happy to serve you any of our just newly created tropical drink, menu-featured-concoctions."

We were "determinded," as the guidebook forcefully put it, to enjoy the "rage" of diversions, including the "glooming universe of lady fortune who has many palaces on the isle of St. Maarten where it is good to dwell for habitues and novices alike." These casinos open early, "so you might casually warm up your fingers and gear up your calculating skills in the sportswear style which is so characteristic and widely accepted." Visiting the casinos, in the sportswear style, we might try dice, roulette, blackjack or the "slot pleasure which is self explaining."

After the slot pleasure, we might seek "shadeful resting places" and "remedy hungry feelings." Or we might observe a policeman on the corner wearing a French gendarme's cap. "If you let your eyes slide down discreetly you will see a pair of strong legs appear from under a policeman's tropical outfit and realize the connection between your exotic experience and the strong arm of the law which is truly French."

When I arrived on St. Maarten, I was truly a "tied up businessman," consumed with figures. When our first rental car died I fumed, unaware that on the islands worry is lamentable for moments are rich, even stranded on a mountainside beside a stalled Citroën. There are sugarbirds to watch and those ubiquitous shadeful palms under which to rest. Two young men came along and effortlessly fixed the ailing engine with a shoestring, smiling shyly as we chugged off to our hotel.

When our second rental car died in the hotel parking lot, I didn't blink an eye; I was deliriously unnerved. Now, back in New England, I am still haunted by the island's language. As the guidebook put it, all islanders who go out in boats carry trawling lines to effortlessly catch dinner, "even those sailing only for laziness and pleasure."

I wish I were still there, something chilly cold in hand, boating on those crystal waters only for laziness and pleasure. Being unnerved can grow on you.

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